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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Individual cities in the southern Levant have been excavated and examined in various capacities over approximately the last 150 years. Both major and minor cities of the Late Bronze Age southern Levant have been excavated, surveyed, researched, and mentioned in ancient textual sources. Yet, no synthetic work investigating in detail the demography of the Late Bronze Age southern Levant exists, which would include population size of each specific settlement, the nomadic regions, population of the region as a whole, and additional demographic information such as life expectancy and gender distribution.¹ Albright estimated the population of Late Bronze Age Canaan to be approximately 200,000 people, but this was a general estimate made without a detailed and specific methodology, in a time when many sites had not been excavated, surveyed, or even discovered (Albright 1975: 108). Marfoe hypothesizes that the total population of the Levant in the Late Bronze Age could have been 600,000 to 750,000, deriving this figure partially from Albright's 200,000 to 250,000 estimate for Palestine (Marfoe 1998: 208).² In another study, the sedentary population of Late Bronze Age Western Palestine was estimated at 58,000 or 46,000, based on supposedly universal ancient settlement density coefficients of either 250 or 200 per built up hectare (Bunimovitz 1989: 152). Broshi, using Gonen's site data and this same density coefficient, estimated the settlement population of Palestine (Western) at the end of the Late Bronze Age to be 60,000 to 70,000 (Broshi 1993: 14).³ Finkelstein, building upon past studies and new archaeological data estimated the population of the region to be around 90,000 to not much more than 100,000 for the settled population (Finkelstein and Silberman 2002; Finkelstein 1996: 244). None of these brief estimates, or others

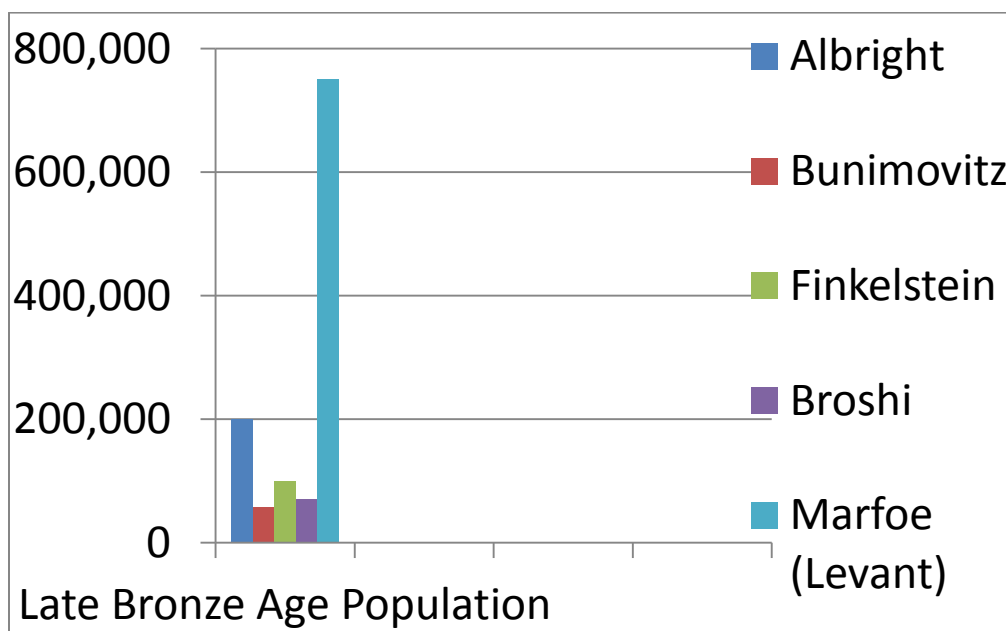
¹ An ancient settlement is defined as a place of residence in which remains indicate people once lived there. This may include both permanent and temporary settlements. Settlements in Canaan were typically permanent.

² Marfoe's estimate is much larger in part because it includes the entire Levant, but it also must assume a higher number of settlements and population density than Bunimovitz, Broshi, and Finkelstein.

³ Broshi, assuming a density coefficient of 250 people per hectare for all ancient societies, estimates the population of the region of Western Palestine was approximately 60,000 people based on an alleged 240 hectares of total settlement in 1200 BC at the LB II/Iron I transition (Broshi 1993: 423).

like them, employed the use of any detailed methodology and equation crafted specifically for settlements of Late Bronze Age Canaan.

Chart 1.1 Previous Population Estimates of the Late Bronze Age



A broad study of select urban settlements and their approximate geographical size during the Late Bronze Age in a section of Canaan was published, but no detailed presentation of the data was given, nor was any demographic data or population estimate for the region or settlements that were examined (Gonen 1984: 61-73). One of the conclusions of this study was that there were fewer and smaller settlements in Late Bronze Age Canaan than Middle Bronze Age Canaan, and that this alleged finding “indicates both a substantially smaller population than in the Middle Bronze period” and a breakdown of the city-states, which appears to be an assumed idea adopted by many archaeologists (Gonen 1984: 69; cf. Bienkowski 1987: 51). This conclusion was partially reached by the assertion that very few settlements in the Late Bronze Age were surrounded by a wall or fortifications, and thus the cities had become weaker and smaller (Gonen 1984: 69). Although the Gonen study gives a listing of sites occupied during the Late Bronze Age in Canaan, it shows merely a minute sampling of the total sites, is decades out of date, and covers only part of the area of Canaan in the Late Bronze Age. If an archaeologist wishes to do comparative studies between various sites in Canaan during the Late Bronze Age, there is no simple, organized, and updated

reference work that comprehensively lists the various sites, their sizes, and relevant excavation or survey work that could be examined, nor is there a reference work that compiles burial data and presents the results of life expectancy and gender distribution in Canaan. If an archaeologist is seeking Late Bronze Age sites in the Canaan region for possible survey or excavation, there is no detailed master list which can be consulted. If an archaeologist or historian undertakes a new study attempting to correlate ancient topographical listings for archaeological sites in Late Bronze Age Canaan, there is no comprehensive list of sites from the period to consult. If an archaeologist, historian, sociologist, or economist needs an approximate figure for the total population of Canaan, a specific settlement, or any of the regions within Canaan during the Late Bronze Age, no publication currently exists which has utilized detailed period and regional data to arrive at accurate estimates for various settlements, nomadic areas, or the region as a whole.

In northern Canaan, there was an apparent trend of urbanization in the region of southern Lebanon between the Middle Bronze Age and the Late Bronze Age—the larger sites stayed occupied while some of the smaller sites became unoccupied in Late Bronze I (Marfoe 1998: 170).⁴ This may indicate an urbanization of the region rather than depopulation, and could be reflective of Canaan as a whole. The rise of city-states, known definitively from the Amarna Letters, could account for this demographic trend of urbanization.⁵ Yet, broad conclusions about the Late Bronze Age from limited archaeological data and studies have been drawn that claim the Late Bronze Age was a period of demographic decline and even increased nomadism. For example, it is asserted that “there is no doubt that the sedentary population of the Late Bronze Age declined to half, even a third, of the population during the Middle Bronze Age” (Bunimovitz 1994: 3). According to previous data, there were an estimated 550 Middle Bronze IIB-IIC (or Middle Bronze II and III) sites in western Palestine, and “although no accurate quantitative determination of the apparent Middle Bronze-Late Bronze demographic decline can be reached at the moment, there is no doubt that such a

⁴ Urban is loosely defined as a settlement area of high population density. Urbanization is the process towards this.

⁵ The term “city-state” is used here to refer to a city which was the seat of authority or central settlement which ruled over or exerted influence over other nearby settlements. The term “polity” rather than city-state has also been suggested as a better term to describe this political structure in Late Bronze Age Canaan (Savage and Falconer 2003: 31-45).

decline did occur” (Bunimovitz 1993: 446-447). Na’aman sees the supposed lack of new fortification projects in the Late Bronze Age as a sign of drastic reduction in the overall population of Canaan (Na’aman 2005: 332; cf. Bunimovitz 1989: 153-160). However, why would new fortification projects be undertaken if many of the surviving, massive fortifications built in the Middle Bronze Age were still in use or able to be repaired? From the idea that few new fortification systems were constructed in the Late Bronze Age, a hypothesis is suggested that there was a destruction of urban culture at the end of the Middle Bronze Age and an accompanying drastic reduction of the urban population in Late Bronze I compared to Middle Bronze III (Na’aman 2005: 330). Later in the period, a suggested gradual growth in the number of new settlements in LB II may have been “due partly to the integration of some nomadic elements into the Canaanite city-state system” (Na’aman 2005: 332). Did a severe climatic shift cause a demographic decline? According to climatic studies, the climate of Canaan between the Early Bronze Age and modern times has not changed drastically, and apparently Late Bronze Age Canaan in the Jordan Valley was similar to conditions of the modern period (van der Kooij and Ibrahim 1989: 10; Goldberg and Bar Yosef 1982: 404). A major climatic shift, it has been argued, came not at the end of the Middle Bronze Age but at the end of the Late Bronze Age, causing famines and contributing to the upheaval of the region (Kaniewski et al. 2013; Langgut et al. 2013; Levy 2009: 150; cf. Na’aman 2005: 340-343). Notably, a recent study shows that for the Jordan Valley there appears to be virtually no difference in the number of sites occupied between Middle Bronze Age II and the Late Bronze Age, and that in fact more Late Bronze Age sites are continually being discovered as excavations penetrate through the Iron Age levels (Schaaf 2012: 112-113; Table 2.8; Figure 2.37). Although the number of sites in a period does not directly correlate to population, this observation suggests that the demographic shift between the Middle and Late Bronze Ages for at least part of Canaan was not as drastic as is often assumed. Was there an actual, massive decline in the number and size of settlements, and in overall population from the Middle Bronze Age to the Late Bronze Age, or is this merely an assumption derived from a hypothesis based on limited investigation of the Late Bronze Age? Was the Late Bronze II eventually a period of new settlements and population increase after a decline in Late Bronze I, or was there a

steady but long term population growth throughout the period, or was it a combination of the two scenarios? No previous archaeological analysis securely confirms or denies these hypotheses, but a comprehensive demographic study of Late Bronze Age Canaan should help to illuminate the issue and determine if the Late Bronze Age was truly an ephemeral period of decline in Canaan, a period of normal population increase, or a time that experienced rapid growth. Preliminary analysis of the archaeological data warrants a hypothesis which suggests that the Late Bronze Age in Canaan was primarily a sedentary period with certain aspects of demographic continuation from the Middle Bronze Age, and an eventual and overall population increase.

1.2 RESEARCH QUESTION

Canaan in the Late Bronze Age is a subject area that has undergone much study in various disciplines, and may be regarded as an important transitional period in the archaeology and history of the Levant and the greater Ancient Near East. However, no work currently exists which presents a detailed methodology, analysis, and estimate of the population of the entire region of Canaan during the Late Bronze Age (Fouts 2007; Finkelstein and Silberman 2002; Finkelstein 1996; Bunimovitz 1989; Gonen 1984; Campbell 1960).⁶ An optimal analysis would include populations of the specific settlements, nomadic region populations, total area population, life expectancy, and sex ratio. This gap in accessible information means that scholars must either make a broad hypothesis about demographic data and trends in Late Bronze Age Canaan based on material from other periods and modern ethnographic data, extrapolate demographic data recorded or estimated from one site, or they must conduct an independent study for a specific settlement or region to obtain the relevant data for a project. Can the population density and total of the settlements, nomadic areas, and region as a whole during the Late Bronze Age be estimated with relative accuracy, and what other major demographic information can be extracted from the archaeological data? To accomplish this, in a manner as accurately as possible, analysis must be done through the

⁶ Each of these studies address the Late Bronze Age, and either give a rough population estimate or discuss issues relevant to estimating demographic factors and population in particular during the Late Bronze Age in Canaan. However, none use a detailed methodology, nor are any comprehensive in scope; the data is incomplete and the estimates are rough approximations of what the sedentary population of part of Canaan may have been during the Late Bronze Age.

development of a precise demographic methodology, then application of that methodology to the archaeological data from Late Bronze Age Canaan. Demography is broadly defined as “the formal study of the characteristics of human populations: size, structure, fertility, mortality, migration, and development,” and its emphasis “is on the description of a given population and on the study of the internal relations between the structure of the population and the changes within the population” (Bintliff & Sbonias 1999: 1). This demographic study will focus primarily upon the population size and density of Late Bronze Age Canaan, both individual settlements and the region as a whole, with secondary emphases of life expectancy and gender ratio.

It has been observed that the study of the past is possible because of the survival of ancient materials, which serve as evidence for inference; through this scientific process of inference, knowledge of the past can be recovered (Schiffer 1996: 73). It is important to remember, however, that the available data represents only a small percentage of what once existed, and that inferences must be made according to data, deduction, and parallels. Thus, the claims and conclusions of this study are acknowledged not as fact, but as deductions based on the available data and evaluation of that data. Allowances must also be made for future modification, as an increase in the relevant data may alter the final results.

1.3 AIM OF THE STUDY

The aim of this research project is to create a comprehensive, synthetic demographic picture of Canaan during the Late Bronze Age, at least so far as that is possible utilizing currently available archaeological data, and to make the methodology, data, and conclusions available to future researchers in an easily accessible and organized format in both hard copy and electronic forms. This will enhance the understanding of the settlements and people of the Canaan region. As a result, researchers would be able to quickly access demographic data and better understand the settlements and people of the Canaan region during the Late Bronze Age in order to use the data for a variety of archaeological and historical applications, including further micro population studies on individual settlements and regions, trends of population increase and decrease over the course of the Late Bronze Age, access to a list of sites

with Late Bronze Age occupation, and the comparison of demographic data with other archaeological periods and regions.

1.4 METHODOLOGY OVERVIEW

The research methodology is primarily quantitative, focusing on Late Bronze Age archaeological data and Late Bronze Age textual data. This information is then utilized in mathematical equations converting the data, such as site occupational period materials, site and building measurements, human skeletal remains from burials, topographical lists, and family size information into useful and comprehensible sets of demographic information. The data is primarily in the form of information derived from excavations and surveys, and only supplemented where relevant and necessary from demographic information in ancient documents; quantitative methods are the focus in order to minimize qualitative interpretation and evaluation. However, further interpretation of archaeological materials and epigraphic data is occasionally necessary, and projection of averages and trends derived from known data is necessary in situations where data for a specific site or topic is scarce or unavailable. Yet, even in these cases of limited or unavailable data, the assumptions to be made are based on appropriately parallel archaeological and anthropological data. Architectural style and features, Late Bronze Age epigraphic sources, and human osteological remains from the period were analyzed. Ancient epigraphic sources are also consulted to aid in the understanding of the population of Late Bronze Age Canaan, but the emphasis is on the geographical and demographic data contained within those epigraphic sources, rather than events or literary themes. The analysis investigates several aspects of each settlement according to the extent of data availability, including size and layout, population, life expectancy, and sex ratio. The settlement size and layout gives architectural information which aids in the calculation of population estimates for each site. Burial data in the form of human skeletal remains especially, and relevant ancient documents as supplementary, illuminate the life expectancy and sex ratio of the people who lived in Late Bronze Age Canaan. Finally, the collective analysis seeks to give an accurate estimated overall population for Canaan in the Late Bronze Age, including both

settlements and nomadic regions, in addition to insight about the lifespan and gender distribution for the region during this period.

1.4.1 Methodology for Settlement Population

Once this study establishes boundaries for Canaan, all sites and regions within those boundaries may be examined for relevant demographic data and calculations made. Any archaeological data from outside of Canaan or the southern Levant, such as Egypt, Mesopotamia, Anatolia, Greece, Africa, Australia, or the Americas must be considered only as supplementary data which may be useful in forming methodology, equations, and noticing trends, but not primary data that will be part of the final results of the study.

The methods of data collection in this project will be multi-faceted, employing site survey via ground or satellite and aerial photos to determine settlement size, the use of excavation reports, regional surveys, analysis of primary documentary sources to arrive at an average figure for nuclear family household size, relevant publications on archaeological demography, artifact and ceramic analysis that serve to illuminate the occupation dates for debated sites, and inquiries to archaeologists to obtain site data that is unpublished. Whenever possible, technological aides, such as electronic databases, satellite imagery, aerial photos, and computerized mapping is used to aid in speed, organization, and collection of data not possible in previous decades. Google Earth Pro was used to create a comprehensive and interactive map of all Late Bronze Age sites in Canaan, where each site has a marker containing data about the site name, site size, occupation during specific periods of the Late Bronze Age (if known), and estimated population. This Google Earth overlay will be made accessible to the public to allow easy searching and use of the data that will be applicable to various future investigations. Since this research seeks to create new methodology and utilize micro studies along with regional studies, and focuses primarily on the raw data from excavated and surveyed sites in addition to relevant epigraphic data from the Late Bronze Age rather than borrowing a methodology or previous population estimates, the end results of the study are open to whatever the data demonstrates and may differ substantially from previous hypotheses. Thus, it should be an objective study that will

only change with the addition of new data or refinement of methodology, useful for a variety of applications, instead of an attempt to support a preformed hypothesis or theory.

The research focuses on all relevant resources for studying the demography of the Late Bronze Age southern Levant, including surveys, excavation reports, and epigraphic sources from the Late Bronze Age. An exhaustive list of sites occupied during the Late Bronze Age in the southern Levant has been compiled (those known as of 2013 by excavations and surveys), and the demographic data from each of those sites has been processed and reported individually and collectively. For sites that have not been excavated, officially surveyed, or no relevant data exists or is available, either on location measurement site survey or the use of satellite and aerial photography was used in order to determine the approximate size of the site during the Late Bronze Age, and if possible the estimated residential area. Otherwise, in order to avoid inflation, the site was not assigned a specific population estimate. For unexcavated sites with limited data available, the total residential area of the site is calculated using an average residential area percentage from extensively excavated and analyzed Late Bronze Age sites in the Canaan region. Cities and towns mentioned in records of the Late Bronze Age, such as Egyptian topographical lists and official correspondence, are also factored into the study (cf. Ahituv 1984; Moran 1992). If settlements are mentioned in ancient records from the Late Bronze Age, but the site has not been found or identified, a low tier average population size for that site is added into the data set with a marker indicating size unknown. Ancient place names from Canaan in the Late Bronze Age—in Egyptian sources from the New Kingdom, Canaanite tablets, and epigraphic sources from the northern Levant, supplemented with place names from the Hebrew Bible purporting to refer back to the Late Bronze Age—were used alongside modern lists of excavated and surveyed sites to compile a comprehensive list of settlements in Late Bronze Age Canaan. Although excavation reports of sites with Late Bronze occupation are vital to this study, especially for house and block size, residential areas, burial data, and situations when survey data is insufficient for demarcating the boundaries of an ancient settlement, archaeological surveys are also essential. The major sources for compiling the list of sites in Canaan occupied during the Late Bronze Age and their

overall approximate size are a variety of surveys and compilations of various archaeological investigations carried out in recent decades, in addition to the supplementary use of GIS with Google Earth Pro and ArcGIS (Genz and Sader 2008; Stern 2008; Zertal 2008; Goren 2004; van der Steen 2004; Zertal 2004; Finkelstein and Lederman 1997; Finkelstein 1996; Marfoe 1995; Finkelstein and Magen 1993; Stern 1993; Zertal 1988; Gonen 1984; Thompson 1979; the Israel Antiquities Authority Archives; the Israel Antiquities Authority Online Database; http://www.antiquities.org.il/survey/newmap_en.asp; MEGA Jordan Database <http://www.megajordan.org/Map>; USC West Bank Archaeological Site Database (digitallibrary.usc.edu/wbarc/). Measurements of the entire area of Canaan and specific geographic regions within Canaan, used for divisions according to geography and separate nomadic areas, were done using Google Earth Pro and ArcGIS.

The major sites to focus on within Canaan are those which have been the most extensively excavated in the Late Bronze Age strata. These sites contain archaeological data, such as architectural styles and city layout, which are broadly applicable to other sites within Canaan that are lacking in excavation data from the Late Bronze Age. Specific sites further north in the Levant that are useful in comparative analysis for both architectural and societal factors include Ugarit, Alalakh, and Emar, while sites in Egypt during the New Kingdom, the Late Bronze Age Aegean, the Iron Age Levant, and Bronze Age Mesopotamia are also useful in comparative analysis to refine methodology and establish more accurate demographic estimates. Following the largest and most extensively studied sites will be smaller, less excavated sites, followed by those sites that have only undergone archaeological survey, and finally sites that have been reported but not officially surveyed. Regions which are completely nomadic or in which no identifiable settlements from the Late Bronze Age are known will have estimated population data calculated based on previously published studies of ancient nomadic and hunter gatherer population density in appropriate geographic and climatic settings. Sites which have been the most extensively excavated and analyzed will take priority in the formation of formulas and alleged patterns to be used in averages that will supplement gaps in data from other sites. Collection of all of the site, nomadic, and burial data from the known Late Bronze Age sites in Canaan has been converted into

demographically relevant summary and conclusion information for each site, geographic region, and a synthesis for the entirety of Late Bronze Age Canaan.

Other population estimation techniques, such as multiplying total site area by a constant density coefficient derived from ethnographic studies of modern villages and cities, will not yield an accurate population estimate of Late Bronze Canaan. Therefore, a methodology specific to Late Bronze Age Canaan must be developed for use on the settlements of this region and period, with additional methodology for estimating the nomadic regions. The specifics on which to base the population estimate for an individual site will vary slightly according to the available data at each site, but will conform to the established technique as much as possible. For sites which have been excavated or surveyed extensively enough to discern the approximate size of dwellings and the area of the residential buildings, the calculations for total population will be based upon the new methodology developed through studies of past demographic models. The equations focus on data restricted to the Late Bronze Age Levant, but the methodology was developed from various techniques used in the ancient Levant, the Bronze Age Aegean, Dynastic Egypt, and 3rd millennium Mesopotamia. The method involves consulting ancient epigraphic sources which indicate the average size of a nuclear family and household in the Late Bronze Age Levant, the average living space in a house, the average area covered by a block or insula of houses, determining the total area size followed by the residential percentage and area of each site, and finally combining the data to come up with an approximate residential population for the site. In addition to this residential population number, an estimate for the royal, administrative, and religious sections of the site will be made to obtain the approximate total site population. For sites which have insufficient excavation data—no discernible city wall boundaries, residential quarters, and house architecture—an estimate will be made for the total site size based on topographical properties that indicate a mound or buried settlement and the presence and frequency of pottery sherds. This will be combined with regional averages for house block sizes and the percentage of sites occupied by residential quarters. These calculations can be checked against a variety of other proposed equations, including estimates of dwelling space in various pre-industrial villages from around the world, which range from 5.3m² to 10m² of roofed space per

person (Chamberlain 2006: 126). Although based on relatively modern data, the studies at least give a comparative range from a variety of low technology societies that may be useful for corroborating methodology or spotting errors and anomalies. Another theory by which to check population estimate results was proposed by Wiessner, in which he suggests that the population density of an ancient settlement varies according to its status as an open camp, enclosed or defended village, or urban community (Chamberlain 2006: 127; cf. Wiessner 1974).

Population estimates based almost purely on ancient data rather than modern comparisons should be much more reliable. As Hassan notes, “correlations between site area and population drawn from modern contexts cannot be applied to archaeological contexts without reservations” (Hassan 1981: 67). Yet, the density coefficients employed by various population estimates of the Bronze Age, Iron Age, and Byzantine Period in the southern Levant using a figure of about 200-250 persons per hectare have been based upon data from observations in the old quarters of various Middle Eastern cities, towns, and villages in Iraq, Iran, and Syria (Finkelstein 1996; Broshi and Gophna 1986; Broshi 1979; Hassan 1981:66). Rather than assign an arbitrary density coefficient derived from a vastly different time period and culture, then simply applied to the overall measure of a settlement, more precise means should be used when seeking an accurate population estimate. One study on urban growth over four millennia proposed using a variety of data sets, including census figures, ancient letters and reports, size of the urban area, size of only the residential area, and the size of the military garrison in the city (Chandler 1987: 2-13). Estimates of square meters per person, people per hectare, or other static density coefficients are susceptible to many inaccuracies because the population densities vary due to differences in cultures and housing size, but people per household in a given culture and time period can be a more reliable constant (Hassan 1978: 55-58). Therefore, the use of period and region specific data is superior to implying figures from a different time and place. Basing a population estimate on the number houses, size of houses, members per household, and residential area of a site is essential for an accurate estimate because these figures can vary widely between sites, regions, and time periods.

In order to arrive at a total population estimate for the entire region of Canaan, the total for all known sites will be added together, then supplemented with an estimate for the nomadic population in the remaining unsettled areas of the region. The method of calculating individual settlement populations and adding all of those together to derive a population estimate for the entire region is much more accurate than attempting a regional estimate based on techniques such as carrying capacity, counting of sites, or demographic comparisons (Renfrew and Bahn 2004: 463). The population figure for the nomadic regions of Canaan will be primarily based upon studies of Australian aboriginal hunter-gatherer camps and Native American Indian hunter-gatherers and seasonal camps, which may have a highly fluctuating residential density depending on the land available and the size of the community population (Chamberlain 2006: 128). For nomadic hunter-gatherer type populations, which are applicable to the nomadic population of various regions in Late Bronze Age Canaan, estimations are based on data from more recent ethnographic studies, which are unfortunately the only type of data available for nomadic populations due to their archaeological invisibility and lack of population data in ancient texts (Hassan 1979: 150; Hassan 1978: 78). This data will be supplemented by any textual sources from or describing Late Bronze Age Canaan which mention nomads, their regions, or any populations data.

1.4.2 Life Expectancy and Gender Distribution Estimates

Burial data and ancient documentary sources were used, when available, to determine the approximate sex ratio and life expectancy in the region as a whole. Since few large cemeteries have been excavated, a low percentage of sites have excavated burial remains, and burial remains per site are generally meager, the sample size was only sufficient if the burial data for all of Canaan was combined.

The primary method for acquiring data about life expectancy and sex ratio is through data from the analysis of physical remains from excavated cemeteries and burials. This can be supplemented by any relevant epigraphic data from the period and comparative studies in human demography from low technology societies. This type of examination allows the discovery of information related to gender ratios, age of mortality, causes of death, and health of the population. Skeletal age estimates and sex

identification of the individual are both based on osteological analysis and the application of methodology developed over the last several decades (Hillson 1996: 176-201; Podzorski 1990: 15-16; Johnston and Zimmer 1989: 11-22; Walker and Johnson 1988:183-188; Bass 2005).⁷ Through the use of various skeletal data, cause of death, trauma, congenital anomalies and non-metric traits, and diseases can also be determined (Podzorski 1990: 17). However, the information derived from skeletal analysis pertaining to age at death and gender is the bioarchaeological focus of this study. Not only are these categories more typically analyzed and the information more widely available, but the gender ratio derived from burial data is an important factor in establishing the approximate average ratio of sons to daughters in the typical nuclear family of Late Bronze Age Canaan. Age at death contributes to the increased understanding of the life of the populace during the period, especially as it relates to life expectancy, infant mortality, and maximal ages of the elderly.

Canaan was not an isolated region and underwent much change between periods, necessitating a focus on data from the Late Bronze Age alone with the possibility of supplemental burial data from the Middle Bronze Age because of the apparent similarity in material culture. Although only the methodology used for gender distribution studies in other parts of the ancient world are relevant, some comparative data from adjacent regions may be useful for a wider demographic context of the ancient Near East, of which Canaan was a part. This burial data will be supplemented and illuminated by epigraphic sources which mention any relevant gender distribution or life expectancy information about Late Bronze Age Canaan, such as historical records and letters from the region and period (Redford 1992: 143-45). With a large enough sample size, the overall results from burial data can be indicative of the general life expectancy and sex ratio for the overall region of Canaan in the Late Bronze Age.

1.4.3 Types of Settlements

In Canaan during the Late Bronze Age, at least 6 types of settlements existed. The 6 divisions of settlements defined for this study are: 1) city/town, 2) village, 3)

⁷ For a more thorough description of how age at death and sex of an individual is determined from skeletal remains, see Chapter 5.

farmstead/rural site, 4) shrine site, 5) outpost, 6) nomadic/seasonal site. For the purposes of this study, city and town may be used interchangeably in terms of size, but differentiated in that a city is considered to be a settlement in which authority is centered, such as the main settlement of the city-state.⁸ A city or town in Canaan is defined as a settlement site of 2 hectares or more. A village is considered a settlement site occupying from 0.5 hectares up to less than 2 hectares. A farmstead/rural site is classified as a permanent settlement of less than 0.5 hectares. Shrine sites, typically smaller than the size of a village, demonstrate evidence of only or primarily cultic or religious activity, and thus would have had limited or no population. Outposts include very small sites, usually less than 0.5 hectares, apparently fortified with no clear evidence of a normal residential settlement. Nomadic/seasonal sites are considered those sites which are less than 0.5 hectares, contain no evidence of permanent settlement such as walls or structures, and have extremely limited artifact and ceramic scatter.⁹ “Nomadic” sites, using typical survey methodology and especially in historically settled zones, are extremely hard to detect due to lack of architecture, limited artifact scatter, and coverage by soil, rocks, foliage, and later material (Rosen 1992: 75-81).¹⁰

1.4.4 Structure of the Thesis

Chapter 1: Introduction. This chapter introduces the topic, reviews relevant previous studies, suggests the need for a detailed and specific study on the population of Late Bronze Age Canaan, and outlines the general terms and research methodology.

Chapter 2: Boundaries of Canaan in the Late Bronze Age. This chapter defines the overall boundaries of Late Bronze Age Canaan that are used in the study. While acknowledging slight variations in opinion on the geographical extent of Canaan, defined boundaries are necessary for cataloging sites, calculating population estimates, and assessing burial data.

⁸ The terms “city” and “town” do not have a common distinguishing definition, and may vary from country to country based on size or political status (cf. Hartshorn 1992). Thus, these settlement names will be distinguished based on political status. A city/town is typically considered urban, but villages may at times be considered urban.

⁹ In this study, settlement sites are calculated separately and in a different manner than the “nomadic” population.

¹⁰ The seasonal “permanent” settlement may not have existed in Late Bronze Age Canaan. No clear evidence exists for this type of settlement, which would primarily be illuminated by texts of the period describing semi-nomads and their building and use of permanent structures rather than the attested use of tents or campsites (cf. Chapter 7).

Chapter 3: House Size in Late Bronze Age Canaan. This chapter synthesizes residential data from Canaan in the Late Bronze Age southern Levant in order to obtain figures for average ground floor usage area for houses, average ground surface area for an insula, and average dwelling space per house. This data is compared to the northern Levant in the Late Bronze Age as an accuracy check. The residential averages are an essential component in the methodology developed for estimating settlement population.

Chapter 4: Family and Household Size in Late Bronze Age Canaan. This chapter examines ancient documents from the Late Bronze Age that record information about family size and illuminate overall household size in the Levant as a whole, and Canaan in particular. These texts are compiled and used to obtain an average for nuclear family size and household size in Canaan during the Late Bronze Age. Average household size is another essential component in the methodology developed for estimating the population of Late Bronze Age Canaan.

Chapter 5: Life Expectancy and Sex Ratio in Late Bronze Age Canaan. This chapter contains a synthesis of all of the burial data from Late Bronze Canaan, in addition to limited relevant epigraphic data, that allows a reconstruction of approximate life expectancy and gender ratio in Canaan throughout the Late Bronze Age.

Chapter 6: Methodology for Estimating Settlement Population in Late Bronze Age Canaan. This chapter details the specifics of the new methodology for estimating the settlement population of Canaan in the Late Bronze Age. The methodology utilizes techniques and data from previous demographic studies with modification and the addition of additional techniques, and then applies this new methodology to a sample site from the Late Bronze Age Levant. The formulas utilized in this chapter will be the basis for calculating the demographic data from each site and Canaan as a whole.

Chapter 7: Methodology for Estimating the Nomadic Population of Canaan. This chapter explains the methodology used to calculate the nomadic population of Late Bronze Age Canaan, based on comparative demographic analysis of hunter-gather and nomadic populations around the world. Pre-settlement California (referring to the period prior to European settlement in the California region) is argued as the closest parallel

geographically and climatically, and thus serves as the primary basis for population density parallels used for Canaan.

Chapter 8: Catalog of Late Bronze Age Sites in Canaan. This chapter presents a list of known Late Bronze Age sites in Canaan from both archaeological materials and Late Bronze Age texts. One list includes archaeological names, the other historical. These are further linked to the corresponding list in *Chapter 9* for the analysis of the specific site. These sites are further divided up into eight defined regions that are used in the study. These regions are designated according to geography rather than political boundaries: 1) the Mediterranean Coastal region, 2) the Beqa Valley region, 3) the Hauran Plateau and Anti-Lebanon region, 4) Central Canaan, 5) the Lake Kinnereth region, 6) Cisjordan region, 7) Transjordan region, and 8) the Southern Desert region.



Figure 1.1 Settlement Regions. Google Earth Pro image digitally manipulated by Titus Kennedy.

Chapter 9: Settlements of Canaan and Their Estimated Population. This chapter includes the relevant site and population data for all known Late Bronze Age sites, listed in Chapter 8, in addition to maps and population summaries. The sites are listed alphabetically and given location coordinates and their geographic region within Canaan. Maps showing site distribution and population distribution are included. Estimated settlement populations according to sub-period and total settlement population for Canaan are detailed.

Chapter 10: A Nomadic Population Estimate for Canaan. This chapter calculates the approximate nomadic population of Canaan during the Late Bronze Age according to geographic and climatic regions, then the total population of Canaan. The nomadic regions are divided into four types of designations: 1) Coastal, 2) Valleys and Plains, 3) Highlands and Mountains, and 4) Desert. Maps showing general nomadic population distribution are included.

Chapter 11: Conclusion. This chapter shows a synthesis of the population data from previous chapters including life expectancy, sex ratio, settlement populations, nomadic populations, sub-period populations, and the peak population of Canaan as a whole during the Late Bronze Age. Archaeological and historical uses for the data are suggested, in addition to possibilities for future research.

1.5 LITERATURE REVIEW: PREVIOUS DEMOGRAPHIC STUDIES

Previous studies which have addressed the population of Late Bronze Age Canaan are extremely limited in number and in scope. However, numerous applicable methodological studies and many archaeological publications focusing on the period and region are vital for the examination and estimation of demographic data.

1.5.1 Primary Sources

The primary sources utilized in this study encompass archaeological excavation reports, survey publications, and site databases. While excavation reports are vital for the understanding of a particular site, few excavations undertaken in Canaan have exposed the Late Bronze Age levels on a large scale. The publications considered most important for this study which address Late Bronze Age levels at excavated sites in

Canaan include: *Ashdod I* (Dothan and Freedman 1967), *Ashkelon 1* (Stager 2008), *The Excavation of Bethel* (Kelso 1968), *Excavations at Tel Beth-Shean Volume II* (Mazar and Mullins 2007), *Excavations at Tel Beth-Shean Volume III* (Panitz-Cohen and Mazar 2009), *Beth Shemesh* (Grant 1929), *Ancient Gaza II: Tell el Ajjul* (Petrie 1932), *Gezer V* (Seger 1988), *Hazor V* (Ben-Tor et al. 1997), *Hazor II* (Yadin and Angress 1960), *Hazor* (Yadin 1972), “Excavations at Tell Abu Hawam” (Hamilton 1935), *Jericho die Ergebnisse der Ausgrabungen* (Sellin and Watzinger 1913), “Jericho: City and Necropolis, Fourth Report” (Garstang 1934), *Kamid el-Loz 10* (Miron 1990), *The Renewed Archaeological Excavations at Lachish* (Ussishkin 2004), *Megiddo II* (Loud 1948), *Megiddo IV* (Finkelstein et al. 2006), *The Tell es-Safi Archaeological Survey* (Uziel 2003), *Sarepta I* (Anderson 1988), *Shechem* (Wright 1965), *Shechem III* (Campbell 2002), *Shiloh: The Archaeology of a Biblical Site* (Finkelstein 1993), *Timnah (Tel Batash III)* (Panitz-Cohen and Mazar 2006), and *Tel Yin'am I: The Late Bronze Age* (Liebowitz 2003). Additionally, many articles contributed significant findings with preliminary publications.

Because of the relatively limited number of sites that have been excavated, in comparison with sites that have been surveyed, site survey publications were vital in compiling a list of Late Bronze Age settlements and estimating the population of the region. The most important survey publications include: *The New Encyclopedia of Archaeological Excavations in the Holy Land* (Stern 2008, 1993), *The Manasseh Hill Country Survey* (Zertal 2004), “Supplement” to *Inscribed in Clay: Provenance Study of the Amarna Letters and Other Ancient Near Eastern Texts* (Goren 2004), *Kamid el-Loz, The Prehistoric and Early Historic Context of the Site, Catalog and Commentary* (Marfoe 1995), *Archaeological Survey of the Benjamin Hill Country* (Finkelstein and Magen 1993), *The Archaeology of the Israelite Settlement* (Finkelstein 1988), and *The Settlement of Palestine in the Bronze Age* (Thompson 1979). Numerous smaller surveys found in books or articles were also essential to compiling a list of sites occupied in Canaan during the Late Bronze Age.

Because many of the archaeological sites are not published in excavation reports, survey volumes, or even articles, site databases are also a necessary and valuable resource for obtaining site lists and site data for the Late Bronze Age in

Canaan, and subsequently estimating population. The most important databases include: the Israel Antiquities Authority Archives, the Israel Antiquities Authority Database (http://www.antiquities.org.il/survey/newmap_en.asp), the MEGA Jordan Database (<http://www.megajordan.org/Map>), the USC West Bank Archaeological Site Database (digitallibrary.usc.edu/wbarc), and the Digital Atlas of the Holy Land (<http://daahl.ucsd.edu/DAAHL/>).

Certain ancient documents from the Late Bronze Age were also essential primary sources used in this study. The most important publications containing relevant Late Bronze Age documents are: *The Alalakh Tablets* (Wiseman 1953), *The Amarna Letters* (Moran 1992), *Ancient Records of Egypt* (Breasted 1906a, 1906b), *Ancient Egyptian literature: Volume II: The New Kingdom* (Lichtheim 1973), *Context of Scripture: Monumental Inscriptions from the Biblical World, Volume 2* (Hallo et al. 2000), *Canaanite Toponyms in Ancient Egyptian Documents* (Ahituv 1984), and *Ugaritic textbook grammar, texts in transliteration, cuneiform selections, glossary, indices* (Gordon 1998). Publications of individual texts or smaller collections were also utilized in extracting relevant demographic information from ancient documents of the period.

1.5.2 Secondary Sources

The secondary sources utilized in this study encompass previous demographic analyses and estimates focusing on not only Canaan, but regions beyond. These studies encompass archaeological demography techniques and studies related to the estimation of demographic data in Late Bronze Age Canaan. The core publications in this category include: “Alalakh and the Archaeological Landscape of Mukish: The Political Geography and Population of a Late Bronze Age Kingdom” (Casana 2009), *Demography in Archaeology* (Chamberlain 2006), *Les Maisons dans La Syrie Antique du IIIe Millenaire aux Debuts de L’Islam* (Castel, Al-Maqdissi, and Villeneuve 1997), “The Territorial-Political System of Canaan in the Late Bronze Age” (Finkelstein 1996), “Estimating the Population Size of Ancient Settlement: Methods, Problems, Solution and a Case Study” (Zorn 1994), “How Many Sumerians per Hectare? –Probing the Anatomy of an Early City” (Postgate 1994), *Houses and Their Furnishings in Bronze Age Palestine* (Daviau 1993), “A Population Estimate of Ancient Ugarit” (Garr 1987), “Middle

Bronze Age II Palestine: Its Settlements and Population” (Broshi and Gophna 1986), “Urban Canaan in the Late Bronze Period” (Gonen 1984), *Demographic Archaeology* (Hassan 1981), “The Population of Iron Age Palestine in the Light of a Sample Analysis of Urban Plans, Areas, and Population Density” (Shiloh 1980), and “The Population of Western Palestine in the Roman-Byzantine Period” (Broshi 1979), and *Ancient Building in South Syria and Palestine* (Wright 1965).

As previous demographic estimates for various ancient periods in the region which Canaan occupied have been previously attempted, a brief discussion is worthwhile to note their general methods and results. A population study which focused on the Middle Bronze Age of Western Palestine published a resulting estimated total population of 140,000 for the settlements of that region in MB IIB, but no estimate was made as to the possible population of the same region in the Late Bronze Age (Broshi and Gophna 1986: 87). The equation used to reach the population estimate was simply the total area of discovered MB IIB sites minus ramparts, multiplied by a somewhat arbitrary and supposedly universal ancient density coefficient of 250 persons per hectare (Broshi and Gophna 1986: 86). A later estimate, building upon this initial study, proposed the urban areas of Middle Bronze II and III had about 120,000 people and the rural areas 80,000 people, totaling about 200,000 for the entire region (Ilan 1995: 305). However, both studies failed to include sites mentioned in ancient texts but undiscovered archaeologically. Nor did either of these studies do a detailed estimate of the rural areas or consider the nomadic population, and they only included a portion of ancient Canaan in their assessment. These studies are now decades old and thus missing many newly discovered sites, and no other demographic information was addressed. Further, as the focus is on the Middle Bronze Age rather than the Late Bronze Age, it is only useful for comparative data and bringing attention to four basic methodological considerations—two of which were ignored: calculating the population of individual settlements towards the whole, removing the area of unused land such as massive fortifications from the settlement area, employing the use of records from the period that mention settlements in Canaan, and accounting for the nomadic population. The most problematic aspect, however, is the broad use of a supposedly universal density coefficient derived from modern Middle East ethnographic studies.

Unfortunately, this same imprecise method was applied to several other population estimates from earlier and later periods.

An earlier study of selected urban sites in the Late Bronze Age only gives data about the number of Late Bronze cities and estimated total site area of these cities during the Late Bronze Age (Gonen 1984: 68). According to that settlement size data, and using the previously employed 200 or 250 per hectare density constants for Canaan, urban Canaan west of the Jordan River and south of Lebanon in the Late Bronze Age would only have had a maximum population of about 41,000 to 51,000. In an unpublished doctoral thesis, a similar figure is arrived at presumably by utilizing the site data from the Gonen study and the density coefficients from the Broshi and Gophna study. Following previous uses of a universal density coefficient for settlements in the Middle East, the sedentary population of Late Bronze Age Canaan was estimated at 58,000 or 46,000 by multiplying density coefficients of either 250 or 200 per built up hectare by total built up hectares (Bunimovitz 1989: 152). Population estimates such as this, based solely on density coefficients from modern era villages lack detailed methodology and equations crafted specifically for settlements of Late Bronze Age Canaan. A more recent study examining the estimated settled area of various sites within the city-states of Canaan also used the density coefficient of 200 people per hectare to estimate a total combined population of the city-states of part of Canaan (not rural or nomadic areas), but arrived at a figure of about 90,000 (Finkelstein 1996: 244). The increase in estimated population between the two studies, from 46,000 to 90,000, both using 200 people per hectare in the towns, demonstrates that the continual exploration and excavation of the region has revealed additional sites and in some cases even site sizes. However, in addition to using a universal ancient site population density coefficient and neglecting the nomadic element of the population, these studies also did not encompass all of Canaan in the Late Bronze Age. Interestingly, an older estimate for which no clear methodology could be found comes from Albright, who suggested that the population of Canaan in the Late Bronze Age totaled about 200,000 inclusive of nomads (Campbell 1960: 21). Likely this estimate was based upon a much higher population density or a more complete version of Canaan than the aforementioned studies. The general idea that these aforementioned studies appear to

give is that there was a drastic population decrease from the Middle Bronze Age to the Late Bronze Age—perhaps from 200,000 down to 100,000 or even as low as around 50,000. Yet, no historical evidence for a mechanism which would allow such a massive population decrease is explained. Attacks on various cities by Egypt, even if that happened on a wide scale—and the evidence for this is lacking—would not produce a 50% to 75% reduction in the population of the region. The multiple waves of the Black Death plague, combined with wars, poverty, and civil unrest killed an estimated 33% of the population in Europe and Western Asia over a period of about a century (Cohen 1995: 38-39). For a reduction in population well beyond the results of the Black Death and surrounding circumstances to have taken place in Canaan from the end of the Middle Bronze Age to the beginning of the Late Bronze Age requires death and population decrease of almost unknown proportions in human history. A possible example of this degree of population decline comes from 16th century Meso-America, when new diseases were introduced to the native population against which no immunity existed and no treatment was known, in addition to the destruction of the population by invasion and violence (Cohen 1995: 40-41). Yet, Canaan at the Middle Bronze Age to Late Bronze Age transition experienced no massive plague or genocide of the population that is known from any sources. Destruction of some of the Middle Bronze Age cities, perhaps by Egyptian armies, is only a hypothesis for which no historical evidence beyond Sharuhén exists. Thus, the population reduction hypothesis must come from an argument that the Late Bronze Age displayed a lack of archaeological settlement remains, indicating a population decline of epic proportions. The assumption of this reduction is based primarily upon the idea that there were not many sites in Canaan during the Late Bronze Age, and certainly far fewer and smaller sites than in the Middle Bronze Age (e.g. Gonen 1984: 63-65). That the Late Bronze Age had “a pronounced reduction in sedentary population” is the typical view (Sugerman 2009: 442). This hypothesis, however, contradicts the current data. Instead, the Late Bronze Age appears to have grown in population from the Middle Bronze Age, and while this is not the consensus view, there are scholars who apparently see general evidence for a continued increase in the population of Canaan from the Middle Bronze Age through the Late Bronze Age (Burke 2010: 60).

After reviewing the various demographic studies which address the population of ancient Canaan, four main issues are apparent: 1) the studies do not encompass the entire area of ancient Canaan, 2) the studies use rather arbitrary and inexact estimation techniques such as multiplying total site area by a person per hectare (or dunam or acre etc.) figure rather than a detailed equation based on period and area specific data, 3) the rural and nomadic population is generally ignored, and 4) the Late Bronze Age in Canaan is conspicuously absent in demographic studies. Thus, a study which addresses and rectifies these issues would provide information useful to furthering the understanding of Late Bronze Age Canaan and ancient demography of the region.

The problem of wildly differing population estimates for the period can be seen even at the level of an individual, excavated settlement. Approximate population estimates have been given multiple times for the city of Hazor in the Middle and Late Bronze Ages. Hazor is an important city because it is the largest known city in Canaan during the Late Bronze Age and has been extensively excavated, and thus it may be used as one of the key sites in establishing and confirming a more precise methodology. The previously published estimates vary between 10,000 and 42,000, clearly exhibiting the vast differences even in imprecise population estimates of a thoroughly studied city (Yadin 1956: 11; Shiloh 1980: 30; Broshi and Gophna 1986: 86; Finkelstein 1996: 245; <http://hazor.huji.ac.il/history.htm>). Butzer's estimate of Pi-Ramesses in New Kingdom times, the same period as the Late Bronze Age, puts the population of this massive city at 100,000 (Butzer 1999: 250). The estimate for the end of the Middle Bronze Age in part of Canaan, Western Palestine, was 138,000 rounded up to 140,000, or 150,000 from a slightly updated estimate (Broshi and Gophna 1986: 87; Finkelstein 1996: 244). It is plausible that the beginning of the Late Bronze Age for the same region would have a population total approximately the same as that of the end of the previous period, the Middle Bronze Age, unless a sudden and major event or events caused an immediate and drastic decrease. However, when comparisons are made between these total region figures, the estimated population of Hazor in the Middle and Late Bronze Age by many estimates accounts for up to nearly 30% of the total population of the region of Western Palestine and the city of Pi-Ramesses alone equals approximately 67% of the population of all of Canaan at the end of the Middle

Bronze Age. Although only a contemporary example for illustrative purposes, this would be similar to New York City holding 30% of the population of the United States (it is about 2.7%), or London comprising 30% of the population of the United Kingdom (it is approximately 12.5%). The extremely high percentage of the total population accounted for by Hazor alone suggests either faulty data or inadequate techniques from either the city estimations, the region estimation, or both. Because these studies were done using a very generalized population density coefficient derived from studies of cities and sections of cities not yet modernized in the Middle East in the 18th, 19th, and 20th centuries rather than data specifically from Late Bronze Age Canaan, the results should be considered inaccurate (Broshi and Gophna 1986: 74; Shiloh 1980: 26). While useful for comparative analysis, data from the modern period is not the most precise basis for making demographic calculations in a specific region during the Late Bronze Age. Even studies from Egypt, the Aegean, and Mesopotamia during the same period should only serve as guidelines and comparisons rather than direct correlations, while the emphasis should be on direct archaeological and epigraphic data from Canaan and the greater region of the Levant whenever available.

1.6 THE CHRONOLOGY OF THE LATE BRONZE AGE

The Late Bronze Age in Canaan is an archaeological period defined by specific material and social culture correlated to historical eras and absolute dates. Late Bronze Age chronology in Canaan is essentially tied to the Dynastic chronology of Egypt, but the period also reflects local cultural change and regional events. The beginning of the Late Bronze Age is generally marked approximately by the early 18th Dynasty and the expulsion and defeat of the Hyksos; the conclusion of the period is marked by the end of the 19th Dynasty in Egypt, and a discernible change in the Levant from the previous period in material culture, architecture, and settlement patterns (Mazar 1993: 239; Dever 1992: 12-20; Leonard 1989: 4-34). The reasons and exact nature of the break between the Late Bronze Age and Iron Age are debated, but the approximate time of this period division is generally agreed upon (Dever 1992: 18-19). The Late Bronze Age is then subdivided into Late Bronze IA, Late Bronze IB, Late Bronze IIA, Late Bronze IIB, while some argue for the elimination of Late Bronze IA or an addition of Late Bronze

III (Mazar 1993: Table 2, 238; Dever 1992: 14-18; Amiran 1970: 12, 124). Cultural changes in the beginning of the Late Bronze Age include the proliferation of Chocolate on White ware, Cypriot Bichrome imports and imitations, Base Ring Ware, Grey Lustrous Ware, and slight changes in local forms from the Middle Bronze Age (Fischer 1999: 1-24; Dever 1992: 13-17; Wood 1990: Fig 9; Amiran 1970: 124-190). The absolute date for the beginning of the Late Bronze Age may vary slightly according to archaeological and chronological interpretations, but ca. 1550 BCE or ca. 1500 BCE are the most common dates currently used (Dever 1992: 14). The end of Late Bronze Age I may be reflected by a period of transition in Canaan during the reign of Amenhotep III in Egypt, and has typically been placed in absolute dates at ca. 1400 BCE (Dever 1992: 14). The beginning of Late Bronze IIA is linked with the later 18th Dynasty reigns of Amenhotep III and Akhenaten, and additionally the appearance of Mycenaean imported pottery termed Late Helladic or Mycenaean IIIA, while the Late Bronze IIB begins approximately at the same time as the 19th Dynasty; these sub-periods are placed in absolute dates at ca. 1400 BCE and ca. 1300 BCE, respectively (Ramsey et al. 2010: Table 1; Wiener 2003: 239-250; Dever 1992: 17-18; Ward 1992: 55-56; Kitchen 1991: Table 2; Amiran 1970: 124-190). For the purposes of this study, the absolute dates encompassing the entirety of the Late Bronze Age in Canaan are considered to be approximately 1500-1200 BCE, with the possibility of dates stretching as early as ca. 1550 BCE and as late as ca. 1150 BCE, depending on the site and region (Dever 1992: Fig. 1; Weinstein 1992: 39; Leonard 1989: 6-7). The designations of sub-periods within the Late Bronze Age in this work are considered to be Late Bronze IA, Late Bronze IB, Late Bronze IIA, and Late Bronze IIB; Late Bronze III is not used as a separate designation, but is considered alternative terminology for the end of Late Bronze IIB. However, because distinctions between the four sub-periods of the Late Bronze Age are often difficult, especially when dealing with survey data, only the broader designations of Late Bronze I and Late Bronze II will be used.¹¹ In this study, the Late Bronze I designation encompasses at most ca. 1550-1400 BCE, but is understood to typically be focused between ca. 1500-1400 BCE, while the Late Bronze II designation

¹¹ At times, even distinction between Late Bronze I and Late Bronze II, or Middle Bronze III and Late Bronze I, or Late Bronze II and Iron Age I are difficult. However, anytime excavation or survey material indicates Late Bronze I or Late Bronze II, those sub-period designations will be used.

encompasses ca. 1400-1150 BCE, but is understood to typically be focused to ca. 1400-1200 BCE. In certain cases the distinction between Late Bronze I and Late Bronze II was not possible; the general designation Late Bronze Age is used in these situations.

1.7 THE GEOGRAPHICAL LIMITS OF CANAAN DEFINED

Although there is a general consensus, the exact boundaries of Late Bronze Canaan have differed slightly according to various archaeologists and historians (Killebrew 2005; Na'aman 1999; Lemche 1996; Rainey 1996; Na'aman 1994; Redford 1992; Lemche 1991). Fortunately, the studies produced by this debate have developed a clearer picture of the boundaries of Canaan and the settlements included during the Late Bronze Age. The general boundaries of Canaan in the Late Bronze Age likely encompassed an Egyptian province in western Asia and correspond to the general area of the modern political entities of Israel, the Palestinian Territories, Jordan, southern Lebanon, and southwestern Syria (Killebrew 2005: 94). It is important to this study to establish precise boundaries in order to define which regions and settlements are being considered part of Canaan during the Late Bronze Age so that accurate regional demographic data can be given.¹²

1.8 LIMITATIONS OF THE STUDY

Due to the lack of data from many sites, and the enormous amount of sites, assumptions about similar settlement architecture, family composition, and burials must be made in order to project averages onto settlements and the region as a whole. While individual settlements would have varied in their specific layout, the trends from sites with sufficient excavation data suggest similarity within the region. Houses, too, would have varied in specific size and layout, as is seen from analysis of remaining Late Bronze Age houses. However, a size range and general layout appears to be present, which allows the utilization of averages to be projected onto residential districts. Families also varied in size, but a composite average enables a standard figure to be employed when applying the figure to a large population set. The primary limitations are the lack of broadly exposed and well preserved Late Bronze Age layers from sites

¹² A detailed explanation of the boundaries of Canaan in the Late Bronze Age is given in Chapter 2.

throughout Canaan, true census lists from any settlements or regions, and extremely large cemeteries from the period in which the human skeletal remains are known to represent the entire population and are extremely well preserved. These limitations, though, are to be expected when dealing with ancient civilizations. Therefore, it is recognized that all estimates derived from the archaeological data are subject to a certain degree of interpretation, and may be modified in the future if substantial additional data is recovered or superior techniques are invented. However, at present, the use of the available data and specifically crafted methodology should be able to yield estimates for the Late Bronze Age population of Canaan that are reasonably accurate and useful for the further understanding and illumination of the period.

CHAPTER 2

BOUNDARIES OF CANAAN IN THE LATE BRONZE AGE

2.1 INTRODUCTION

Although Canaan in the Bronze Age was a region and not a united national entity, it had approximate borders which were delineated by certain towns and areas in the land of Canaan and inhabited by Canaanite people. Lest one argue that the region was so ambiguous and fluid as to be totally undefined, the Canaanites themselves wrote about “the border of the country” in the Late Bronze Age, although no map or single detailed geographical document from the period defines the exact boundaries (Moran 1992: EA 9:19-21). Many documents from Egypt, Canaan, and the northern Levant during the Late Bronze Age illuminate the probable boundaries of the Canaan region. In the scholarly community there is general assent to the probable boundaries, but they are only approximate, and it is unlikely that exact borders of the kind surrounding modern countries existed. This demographic study will work within the scholarly consensus of the probable boundaries as it is not the purpose of this chapter to prove definitively exact boundaries for Late Bronze Age Canaan (if exact borders even existed), but instead to present textual evidence and the studies of various scholars to arrive at probable and approximate borders that will be used for the purpose of the demographic study. The study will divide the entire region of Canaan into sub-regions and each site within those sub-regions will be addressed. The nature of division down to sub-regions and specific sites will allow for easy adjustment of regional boundaries in the future if subsequent studies necessitate modification. At present, however, the following evidence and assessments will be used for the general boundaries of Canaan in the demographic study.

2.2.1 The Area of Canaan According to Egyptian Texts

Although several Egyptian texts from the Late Bronze Age mention the land of Canaan and many of the cities within Canaan, few texts give information which allows one to specify which cities were within Canaan. One Egyptian example which does specify particular cities as being located within Canaan is the Merneptah Stele,

inscribed near the end of the Late Bronze Age. This victory stele mentions a campaign to Canaan and specifies three cities located there: Ashkelon, Gaza, and Yeno'am (Singer 1988: 3). These three cities, all within the present borders of Israel and Palestine, are defined as part of Canaan by Late Bronze Age texts. Sharuhēn and Rapia south of Gaza are also included in the Canaan region according to 18th Dynasty Egyptian topographical lists (Na'aman 1994: 405). Located in the modern day Gaza Strip, near Sinai, these two cities are also in close proximity to the possible location of the Brook of Egypt. The mention of these two cities helps to establish southern boundaries for the region, which apparently did not extend deep into the arid regions of the Sinai or the Arabian Desert. Lists of Thutmose III and 19th Dynasty Pharaohs also suggest that some of the cities in Transjordan, such as Pella and Tell es-Sa'idiyeh, were also under Egyptian influence and administration, and thus theoretically part of the "province" of Canaan during the Late Bronze Age (Bienkowski 1989: 61). From the reign of Seti I, Hammath¹³ and Pella are mentioned in the context of Canaan (ANET 253-54). Pella is also mentioned in the context of Canaan from the reign of Seti II (Papyrus Anastasi IV 16.11). Toponyms on a topographical list of Thutmose III give further indication that Transjordan was included in Canaan during his reign (Redford 1982: 55-74). During the Late Bronze Age, at least a section of Amurru may have been considered part of Canaan (Rainey 1996: 8) as is suggested by a threatening remark in an Amarna letter addressed to Aziru of Amurru. The letter appears to suggest Amurru as part of Canaan, and clearly that Gubla (Byblos) was part of Canaan, as it threatens Aziru that the Pharaoh "does not fail when he rages against all of Canaan" (Moran 1992: EA 162: 39-41). Labweh, rendered from Egyptian *Rbw'* and likely situated at Tell Labweh in the Valley of Lebanon, is argued to be a northeastern boundary of Canaan during the Late Bronze Age (Maisler 1986: 196-201). The Egyptian texts alone, although not exhaustive on the boundaries, appear to delineate the borders of Canaan in the Late Bronze Age at least as far as Rapia in the south, Pella and Tell es-Sa'idiyeh in the east, and Byblos over to Labweh in the north. More defined boundaries of the northern, eastern, and southern extent of Canaan can be discerned through additional ancient texts from the Levant and Mesopotamia.

¹³ Hammath of the Galilee region

2.2.2 Canaan According to Texts of the Northern Levant and Mesopotamia

Documents from cities in the northern Levant and Mesopotamia also mention Canaan and Canaanites, and serve to delineate the northern borders of Canaan by specifying which cities were considered Canaanite and which were not. The flight of King Idrimi of Alalakh to “the land of Canaan” demonstrates that Canaan was considered a separate and distinct region south of the kingdom of Alalakh (Rainey 1963: 43). According to documents from Alalakh in the Late Bronze Age, and specifically one involving a Canaanite hunter, the legal authorities there considered Canaan not only to be a defined geographical entity, but a region outside of the kingdom of Alalakh (Na’aman 1999: 32). Farther to the south, texts from Ugarit also shed light on which parts of the Levant were not considered Canaan. A Canaanite merchant mentioned at Ugarit was designated in a different manner than natives of Ugarit, but in the same manner as other foreigners, suggesting that the kingdom of Ugarit was not considered a part of Canaan (Rainey 1963: 43-45 ; Na’aman 1994: 403). According to Na’aman, “we may conclude that in letter RS 20.182A+B, Canaan is mentioned as a well-defined entity separate from Ugarit” (Na’aman 1999: 35). Thus, the northern boundaries of Canaan appear to have been just south of the Orontes River at Ammiya, while the kingdoms of Mugish and Ugarit were not considered part of Canaan (Rainey 1996: 3-4). To the east, the city of Rahisum/Ruhisu south of the Qatna area appears to have been considered a city in Bronze Age Canaan, and possibly the northeast border according to textual data from the Mari Letters (Na’aman 1994: 398). Textual evidence from Nuzi, although being geographically ambiguous, alludes to Canaan being a region between Egypt and the northern Levant (Grintz 1966: 121 footnote 39). Based on one theory related to Assyrian texts illuminating geography of the region, alteration in the understanding of the southern section of the geographical region may have changed from Wadi Besor in the earlier periods of the Late Bronze Age and Iron Age I to Wadi el-Arish as the Brook of Egypt in the 8th century BCE following Sargon’s campaign to Rapia (Hooker 1993: 214). However, it is relatively clear from ancient texts, although from after the Late Bronze Age, that the Wadi el-Arish was considered the Brook of Egypt. If it had been Wadi Besor during the Late Bronze Age,

the boundaries in the south do not change drastically. However, this wadi appears to be an unlikely candidate due to the mention of Rapia, located to the southwest of Wadi Besor, in the context of Late Bronze Age Canaan from documents of the period. Thus, texts from the northern Levant and Mesopotamia appear to define the region of Canaan with approximate boundaries around Ammiya or northern Lebanon in the northwest, Ruhisu or southwestern Syria in the northeast, and the western Sinai, perhaps around Wadi el-Arish, in the south.

2.2.3 The Extent of Canaan According to Canaanite Texts

Canaanite texts are some of the most helpful for defining exactly which cities or regions were considered to be part of Canaan in the Late Bronze Age. According to data recovered from cuneiform tablets at multiple sites, the use of the Canaanite language in these texts suggests that Canaan encompassed an area situated in present day Lebanon, Syria, Israel, Palestine, and Jordan, and specifically included ancient cities such as Tanaach, Pella, Beirut, and even as far as Kumidi (Dassow 2004: 643, 671; Na'aman 2004: 96). For example, Late Bronze Age tablets from both Kumidi and Beirut exhibit the same “Canaanite-Akkadian features as the Amarna letters from Beirut,” demonstrating that the same language was used at various sites in Canaan (Dassow 2004: 671). A letter from the king of Damascus to the Pharaoh places both Damascus and Kumidi in the land controlled by Egypt but very near the land controlled by Hatti (Moran 1992: EA 197:13-31). This suggests that Damascus was near the northeast border of Canaan, and that Kumidi may have been near the north-central border of Canaan. An Amarna Letter from Tyre (Moran 1992: EA 151) is interpreted by Rainey to say that Tyre is located within Canaan—an idea which would agree with other texts about the status of cities from this region being located in Canaan (Rainey 1996: 9-11; Moran 1992: EA 151:49-58). In another Amarna Letter, the towns of Hannathon and Akka (Acco) are named as part of Canaan, and the writer, Burna Buriash II of Babylon says to the Pharaoh that “Canaan is your country” (Moran 1992: EA 8:13-21). This demonstrates not only that Hannathon and Akka are in Canaan, but that the region had defined borders that outsiders such as the Kassite king of Babylon recognized. Another foreign ruler, the king of Mitanni, also seems to have recognized that certain cities and

areas were within a defined region called Canaan, as he wrote “to the kings of Canaan,” servants of the Pharaoh (Moran 1992: EA 30). The “border” of Canaan is even mentioned in one letter, further suggesting that fairly well defined boundaries were understood for the region during the Late Bronze Age (Moran 1992: EA 9:19-21). The Amarna Letters, and particularly EA 191, locate the city of Ruhizza somewhere south of the Qatna area in Canaan, possibly at the northeast border near Damascus, and the city is described as having a mayor who is waiting for the commissioners from the king to arrive (Moran 1992: EA 191: 1-8; Na’aman 1994: 398). Although from a much later period, Phoenician coins of Beirut also place this city in Canaan, adding to the body of evidence that much of modern day Lebanon was considered part of ancient Canaan (Weippert 1980: 354). Other important cities of the north such as Sidon and Hazor are included in the land of Canaan under the influence of the Pharaoh (Moran 1992: EA 148:18-47). Farther north, Gubla (Byblos) is clearly included in Canaan during the Late Bronze Age as it is mentioned as part of “the lands of Canaan” that belong to the Pharaoh (Moran 1992: EA 131:57-62; EA 137:65-77; Na’aman 1994: 401). To the east in Transjordan, almost directly south of Damascus, the city of Qanu is another vassal of the Pharaoh and seems to be included in the sphere of Canaan (Moran 1992: EA 204:1-20). Both Pella and Ashtartu, to the west of Qanu, are mentioned in association with other Canaanite cities and under the influence of Egypt (Moran 1992: EA 256:1-32). Farther south, on the east side of the Dead Sea, no cities are mentioned; this arid zone may not have been considered part of Canaan proper. In the southwest, Gaza is mentioned as an Egyptian controlled city in Canaan (Moran 1992: EA 296:30-35). Thus, Canaanite texts define the approximate borders of the land of Canaan in the Late Bronze Age running as far as Byblos and Kumidi in the north, and east to Damascus along the north line, then south to the Qanu area in Transjordan, an undefined southeast quadrant (perhaps because the Dead Sea was the southeastern boundary), and west around the Gaza area in the southwest of the region.

2.2.4 Borders of Canaan According to the Hebrew Bible

In the Hebrew Bible, the boundaries of Canaan are defined primarily in the books of Numbers and Joshua. Although many scholars either disregard these books as irrelevant evidence for Late Bronze Age traditions about the extent of the land of Canaan because they hold them to be late constructs of the Iron Age, others argue that the geography reflects the Late Bronze Age. Rainey argues that the land of Canaan defined in Numbers 34 “is a real geographical concept that originally goes back to the Late Bronze Age and probably earlier...regardless of the date of the passage” (Rainey 1996: 12). Evidence for the borders of Canaan being ancient geographical information going back to the Late Bronze Age is indicated by a comparison between many of the occupied cities mentioned in both the Numbers and Joshua sections and the Amarna Letters, and a comparison between those sections and the understanding of the borders of Canaan from Late Bronze Age texts discussed previously. The boundaries of the land of Canaan based on cities or areas as border markers listed in the books of Numbers and Joshua and the inhabited cities listed in the Amarna Letters are comparable and suggest a shared period of events. The way in which cities coincide is suggestive of the geography reflecting the Late Bronze Age in both sets of sources. Important border region cities mentioned in both sets of sources include: Gaza in the south (Joshua 10:41; EA 296), Gubla in the north (Joshua 13:5; EA 98), and Ashtaroth in the east (Numbers 32:3; Joshua 13:12; EA 256). With these three cities as border points and the Dead Sea and Mediterranean Sea as the other boundaries in common, roughly the same map of Canaan in the Late Bronze Age emerges.

The book of Numbers gives an outline of the “land of Canaan according to its borders” (Numbers 34:2, NASB). The southern border appears to extend from the end of the Dead Sea to south of Kadesh-Barnea and to the brook of Egypt in the west, just south and west of the Gaza region (Numbers 34:3-5). The western border is obviously the Mediterranean Sea (Numbers 34:6). The northern border is said to extend from Mount Hor near the Mediterranean Sea to Lebo-Hamath and finally at a place called Hazar-Enan (Numbers 34:7-9). Unfortunately, these locations are not precisely known. Lebo-Hamath has a suggested identification with Lebweh in the Beqa’ valley, but this is not absolutely certain (Aharoni 1979: 72-73). It is likely that Byblos was to the west of the location of Lebo-Hamath. The eastern border is partially identified by the town of

Riblah, in the land of Hamath, associated with the modern town of Riblah, Syria, to the south of Homs and to the east of a place called el Ain (Numbers 34:11; 2 Kings 23:33). From this location on the northeast border, the boundary line flows south to some sloping land east of the Sea of Galilee (Numbers 34:11). From there, the border goes south to the Dead Sea as the southeast point. This set of borders makes it clear that the Israelites understood at least part of Transjordan to be included in the land of Canaan. Earlier in the book of Numbers, cities such as Ataroth, Dibon, and Heshbon, which have been tentatively identified with sites in Transjordan, are said to have been taken by the Israelites (Numbers 32:3). These cities appear to fall within the borders outlined in Numbers 34. The book of Joshua also records some information related to the boundaries of Canaan. One section mentions Heshbon, and the Jabbok River as a border marker for the land of Ammon (Joshua 12:2). This may indicate that Amman was understood as part of a separate region, and could be an explanation for the absence of Amman or Rabbah in the Amarna Letters. The book of Joshua also mentions Ashtaroth, agreeing with the understanding of the eastern region of Canaan seen in Numbers (Joshua 12:4). Later in Joshua, additional information about the borders of Canaan is given, including Shihor east of Egypt (possibly the brook of Egypt area), Gaza, Gubla (Byblos) and east in the Lebanon area to Lebo-Hamath, Ashtaroth, the plain of Madaba, Dibon, and up to the border of Ammon (Joshua 13:3-12). In sum, the boundaries seem to be placed at the Dead Sea, the Amman area and the Jordanian Desert to the east, the Sinai wilderness and the Mediterranean Sea to the west, and foreign political regions to the north in modern Syria and northern Lebanon.

Some scholars consider the area of Transjordan to be excluded from the limits of Canaan in the Hebrew Bible, specifically as defined in the books of Numbers and Joshua (Na'aman 1994: 410). However, there are two explanations that allow part of Transjordan to be included in Canaan. First, the distinction between the region of Transjordan east of the river may have been made because in the conquest narratives the Israelites had first conquered Transjordan and taken control of the area, thus becoming the territory of Israelite tribes and ceasing to be Canaan. Even if the narratives were written much later, the distinction could reflect that the area west of the Jordan River was under the control of the Israelites, while Transjordan was under the

control of separate political entities. Further, analysis of the tribal areas reveals that parts of Transjordan appear to be included in the “Promised Land” of Canaan, indicating that Transjordan was at one time include in the region of Canaan. Second, cities of Transjordan are mentioned in the topographical lists concerning Canaan in both Numbers and Joshua. As noted above, this geographical information for Canaan from the books of Numbers and Joshua, including part of Transjordan, agrees with the geographical boundaries of Canaan during the Late Bronze Age written in Egyptian, Canaanite, Mesopotamian, and northern Levantine texts.

2.3 THE VIEW OF GEOGRAPHICAL CANAAN IN SCHOLARSHIP

In general, scholars have agreed on basic geographical boundaries for the land of Canaan. There has, however, been a small amount of dissent and slight modification of some of those borders. According to Bienkowski, “the Egyptian and Ugaritic (and biblical) texts agree on a fairly precise definition of Canaan in the Late Bronze Age as consisting of the entire Levant south of Ugarit. It is quite clear that Ugarit was not regarded as part of Canaan” (Bienkowski 1999: 708). This view broadly agrees with the approximate boundaries of the region that can be gleaned from Canaanite texts. Some scholars have defined the northern border with the city of Byblos as the edge of Canaan (Golani 1999: 124). While Byblos is south of Ugarit, this qualifier makes the border less ambiguous. Na’aman also agrees, positing that Nahr el-Kabir, just north of Byblos, was the northern limit of Canaan (Na’aman 1994: 411). Due to the content of certain ancient texts, Rainey takes the familiar position that Canaan in the Late Bronze Age included such cities as Tyre and Beirut, but not Alalakh and Ugarit (Rainey 2003: 169-172). Byblos is situated between these two areas. According to another analysis of the occurrences of the term Canaan in West Semitic Late Bronze Age texts, Canaan is defined as a specific area with roughly common cultural and religious practices, and is located as a region south of both Alalakh and Ugarit (Hess 1998: 370). Other scholars concur that Canaan was obviously located outside the kingdoms of Ugarit and Alalakh, and also outside of Mitanni, Babylonia, and Egypt (Na’aman 1994: 406). In the northeast, Damascus, Kadesh, and the region west and south of the Orontes River were all within Egyptian control during parts of the Late Bronze Age, but all of these

areas were not necessarily part of Canaan (Redford 1992:167). Though it may be tempting to simply equate Canaan with Egyptian controlled Western Asia, according to Egyptian campaign texts and battles over the area, Kadesh seems to be outside the region of Canaan. Although two Amarna Letters indicate that Kadesh was under Egyptian control at that time, the city may have been more naturally aligned with Hatti and Mitanni instead of Egypt or other Canaanite city-states (Moran 1992: EA 189-190). Canaan was thus likely located to the south of Kadesh (Na'aman 1994: 411).

Many scholars agree that at least part of Transjordan was also included in Canaan during the Late Bronze Age. Van Seters argued that Canaan did not include any territory directly east of the Jordan River, but this idea is based on an alleged argument from silence (Van Seters 1975: 46). Relying on studies of the Amarna Letters and the city-states of Canaan, Finkelstein asserts that Pella and Hazor both controlled area on the east side of the Jordan River (Finkelstein 1996: 237). Based on archaeological evidence from material culture and ancient texts, Sauer also sees Transjordan as part of Canaan. "The Late Bronze culture in Transjordan is in every way identical to that known from Palestine and coastal Syria...texts make clear what the physical archaeological remains also show," that the population in Transjordan was also predominantly Canaanite (Sauer 1986: 9). If the material culture and language are the same, the geographical proximity is close, and texts from the period associate together cities on both sides of the Jordan River, then it follows that Canaan also included parts of Transjordan.

The inclusion of sites in Lebanon, Syria, and Jordan in Late Bronze Age Canaan is advocated by multiple independent analyses. Four notable studies draw comparable boundaries for the land of Canaan. Finkelstein argues that Canaan included cities outside of Western Palestine, such as Tyre, Sidon, Ashtaroth, Damascus, Kumidi, and Pella (Finkelstein 1996: 242-43). Tammuz also considered Canaan to include areas in southern Lebanon, southwestern Syria, and part of western Jordan. Mapping the boundaries of the land of Canaan from a detailed study of the relevant ancient textual sources and building upon past research he suggests that the northern border was situated around Ammiya, stretching east to Lebo-Hamath south of the Qadesh area, south to the hills east of the Sea of Galilee, south down to the Dead Sea, and then west

to Kadesh-Barnea and the Brook of Egypt (Tammuz 2001: 543). Yeivin came to conclusions similar to that of other scholars and what the various ancient texts appear to outline, arguing that based on Egyptian topographical lists of Thutmose III, Canaan stretched from Wadi el-Arish in the south to the area of the kingdom of Hamath, near El-Hammeh, in the north (Yeivin 1950: 51). Most recently, Goren stated that the province of Canaan in the Late Bronze Age included regions such as Transjordan in the east and parts of Syria and Lebanon in the north, but excluding places as far north as Ugarit or as far south as the desert region south and east of the Dead Sea (Goren 2004: 333).

Although scholars generally concur as to the boundaries of Canaan in the Late Bronze Age, one objects and offers a radical alternative view. Lemche, primarily on the basis of a letter from Abi-Milku of Tyre, has argued that the geographical term Canaan was used ambiguously in texts of the Bronze Age and that the Canaanites “had no clear idea of the actual size of this Canaan, nor did they know exactly where Canaan was situated” (Lemche 1991: 39; Moran 1992: EA 151:49-67). He states that the term Canaanite was understood to essentially mean outsider or foreigner, and that Canaan as a term meant only reference to a land different from one’s own (Lemche 1991: 52). Other scholars have taken nearly the opposite view. Na’aman critiqued and rejected this proposal, and came to the conclusion that Canaan in the Late Bronze Age was a specifically defined territory and even political entity with people referred to as Canaanites, that both the international and domestic writings illustrate this, and that certain cities and areas are clearly distinguishable as part of a territory called Canaan (Na’aman 1994: 408). A vast body of evidence appears to demonstrate that not only was Canaan a defined geographical region during the Late Bronze Age, but that the borders can be delineated through analysis of the many ancient texts and archaeological findings.

2.4 PROPOSED BOUNDARIES OF LATE BRONZE AGE CANAAN

This study proposes a defined set of boundaries for Late Bronze Age Canaan based on synchronizing the relevant ancient texts and weighing the findings of various scholars. All of the different sources appear to consider Canaan a defined region with borders and to place those borders in approximately the same areas during the Late

Bronze Age. Although the boundaries cannot be stated with absolute precision and certainty, they are formed from the best available evidence. Future discoveries may necessitate modification, but it is unlikely that any findings would warrant a radical change in the approximate borders of Late Bronze Age Canaan.

The boundaries thus established will define which archaeological sites in the Levant are included in the demographic study of Canaan. Any sites within these borders which contain Late Bronze Age occupational remains or are mentioned in texts from the period as being occupied in the Late Bronze Age must be factored into the demographic study. Sub-regions may be formed to allow for different types of regional studies and divisions for convenience of comparative studies, but the entire area and all sites within this area must be considered when calculating a total population for Late Bronze Age Canaan and any other broad demographic information.

The proposed boundaries for Canaan in the Late Bronze Age are: Byblos (Gubla) in the northwest, east to Labweh north of Kumidi, southeast to Damascus in the northeast corner, south past Ashtartu to Qanu in the east, southwest to the Dead Sea, west from the southern end of the Dead Sea, through the Negev, and past Rapia to Wadi El-Arish.



Figure 2.1 Late Bronze Age Boundaries. Google Earth image digitally manipulated by Titus Kennedy.

CHAPTER 3

HOUSE SIZE IN LATE BRONZE AGE CANAAN

3.1 INTRODUCTION

In order to establish a precise methodology for calculating populations of settlements in Late Bronze Age Canaan, an average house size must be determined from structures discovered through excavations in Canaan. This average house size includes both the surface area which the house would take up in a city, town, or village, and the total dwelling area for residents within a house. Although not as crucial for estimating total settlement population, approximate sizes for palatial and administrative residences, where rulers lived, and temples—where priests may have lived—are also important for understanding the public or official sections of a city. Average houses, however, are the most important aspect of a demographic population density and total study, as the vast majority of the population lived in regular houses and the residential districts of settlements. To obtain an average house or housing unit size for Late Bronze Age Canaan, the measurements of houses from multiple sites throughout the region will be examined and calculated into an average for a single household. Palatial residences and temples varied by city, and even within a city. Although the population density in districts which contained various types of public, administrative, or religious buildings was much lower, people still resided in these buildings and therefore should be factored into a population total for a settlement.

3.2 AVERAGE HOUSE SIZE IN LATE BRONZE AGE CANAAN

Excavations of Late Bronze Age levels from the following 14 sites in Canaan allow an average house size figure to be derived for the period. From Tell Abu Hawam Strata IV and V, houses from both phases of the Late Bronze Age have a ground floor area of approximately 100 m² (Ben-Dov 1992: 103). At Late Bronze Age Ashdod, Building 5381 of the Late Bronze Age II Stratum XIII appears to actually be two houses set up in an insula structure, rather than one large house (Mazar and Ben-Shlomo 2005: Plan 2.2). The north house measures about 8 meters by 11.2 meters for a ground floor surface area of approximately 90 m², while the outer walls of the south house measure

about 11.2 meters by 12.8 meters for a total ground floor surface area of approximately 143 m² (Mazar and Ben-Shlomo 2005: 16-20, Plan 2.2). These buildings were also calculated to contain a combined approximate total of 143 m² of useable living space on the ground floor (Theoret 2010: 39; Dothan and Freedman 1967: 79). Excavations at Tel Batash/Timna Stratum VIII revealed a house (Building 315) from LB IIA in a state of excellent preservation measuring approximately 11.1 meters by 13.5 meters for a total surface area of 150 m², and with an estimated inner floor space of approximately 96 m² inclusive of the staircase (Panitz-Cohen and Mazar 2006: 183). At Tell Beit Mirsim in the Late Bronze Age Stratum C, the best preserved house appears to have measured 11.4 meters by 14.3 meters, equaling approximately 163 m² in total ground surface area (Albright 1938: Plate 52, Plate 56). The interior living space was calculated at approximately 108m² on the ground floor (Theoret 2010: 41). At Beth Shemesh, a structure interpreted as a house from Level IV in the Late Bronze Age measuring approximately 10 meters by 10 meters on the outer walls covered approximately 100 m² of ground floor surface area (Grant 1929: 221). The Late Bronze Age strata from Tel Dan, ancient Laish, revealed a structure designated Building 6156 that was built into the Middle Bronze Age rampart and originally interpreted by the excavator as a temple, to actually be a house as illuminated by the domestic finds. This house, which contained cooking pots, a grinding stone, bronze tools, bronze slag, needles, a limestone mold, and a basalt mortar and pestle, had walls 0.9m wide and measured about 8.75 meters by 7.75 meters for an approximate ground floor surface area of 68 m² (Ben-Dov 2011: 126, 131-134). Two houses at Tell el-Ajjul vary widely in size—a probable single family house of 42 m² of ground floor surface area, and a possible multi-family house of 176 m² of ground floor surface area (Daviau 1993: 365). The Tel Harassim excavations in Area E, Stratum Vb, uncovered a house (Building 305) from LB IIA with a total surface area of about 110 m² on the ground floor (Givon 1999: Figure 2). At Late Bronze Age Hazor in the Lower City Stratum 1B, a five room house in Area C (House 6063) had an area of approximately 69 m², another courtyard style house (House 6160) in the same area and stratum was about 84 m² in ground floor surface area, House 8039 with fourteen rooms contained approximately 154 m², while House 8068 was a massive 219 m² in area (Yadin et al 1958: 76-81; Yadin et al 1960: 98, Plates 208- 210). In what

appears to be an insula of probably 3 houses at Late Bronze Age Tell Gemme, one particular house in the south is clearly discernible (Ben-Shlomo 2012: Fig 5). This house, in a contiguous set of structures designated Building I, measures about 19 meters by 6.3 meters for an approximate total surface area of 120 m² (Ben-Shlomo 2012: 140-145, Fig 5). The Late Bronze II level at Jericho revealed a residence called the Middle Building, which measured about 14.5 meters by 7.5 meters for a 109 m² approximate ground floor area (Garstang 1934: Plate XIV).¹⁴ The earlier stratum from Jericho, interpreted to continue into the beginning of the Late Bronze Age, also contained an excellent example of a domestic structure.¹⁵ Built into the north rampart, this slightly odd shaped house had a maximum approximate ground floor area of 137 m² (Sellin and Watzinger 1913: Tafel I, Tafel III). At Lachish Level VIIa, Area S, a Late Bronze Age house has a ground floor area of about 80 m², although there is also the slight but unlikely possibility that the structure was two connected single household dwellings of about 42 m² and 38 m² (Ussishkin 2004: 346-49, Figure 8.29). A house at Megiddo that had been originally built in the Middle Bronze Age, but continually occupied and modified through the Late Bronze Age (House 3002), had a ground floor surface area of about 150 m² (Ben-Dov 1992: 102-103). A Late Bronze Age II house from Tel Yin'am, which may have even been a housing complex, measured approximately 11.5 meters by 13 meters with a large central room or courtyard for a total ground floor surface area of about 150 m² (Liebowitz 2003: 55, Plan 3.4). These housing measurements from Late Bronze Age sites in Canaan suggest relatively limited range in house size, and that a degree of uniformity existed in the domestic architecture. According to this data, the total of 21 distinct residential units, or houses, would have covered a total surface area in a settlement of approximately 2,514 m², excluding streets.¹⁶

¹⁴ These measurements do not include what appears to be open area in front of the residence. This area was considered to be an unroofed section outside of the actual house, not included in the structure itself.

¹⁵ For references relating to the Late Bronze Age I being represented at Jericho, see the Jericho entry in Chapter 9.

¹⁶ The total of 21 houses considers the Lachish structures to have been one house of 80 m² surface area.

Table 3.1: Late Bronze Age House Sizes in Canaan

| Site | Ground Floor Surface Area of House |
|-----------------|---|
| 1) Abu Hawam | 100 m ² |
| 2) Abu Hawam | 100 m ² |
| 3) Ashdod | 90 m ² |
| 4) Ashdod | 143 m ² |
| 5) Batash | 150 m ² |
| 6) Beit Mirsim | 163 m ² |
| 7) Beth Shemesh | 100 m ² |
| 8) Dan/Laish | 68 m ² |
| 9) El-Ajjul | 42 m ² |
| 10) El-Ajjul | 176 m ² (multi-family or large complex?) |
| 11) Harassim | 110 m ² |
| 12) Hazor | 69 m ² |
| 13) Hazor | 84 m ² |
| 14) Hazor | 154 m ² |
| 15) Hazor | 219 m ² (multi-family or large complex?) |
| 16) Gemme | 120 m ² |
| 17) Jericho | 109 m ² |
| 18) Jericho | 137 m ² |
| 19) Lachish | 42 m ² (probably one house with #20) |
| 20) Lachish | 38 m ² (probably one house with #19) |
| 21) Megiddo | 150 m ² |
| 22) Yinam | 150 m ² |

The sample of Late Bronze houses reveals a variation in individual size from 38 m² to 219 m². The 219 m² house from Hazor, however, may have been a household for more than one family, or a particularly large family. At Ugarit, Late Bronze Age houses were measured to have varied from 80 m² to 250 m² (Yon 1992: 27). In Middle Bronze Age Canaan, however, houses have been documented with a much wider range—from 20 m² to a massive 300 m² (Faust 2005: 111). This may suggest that

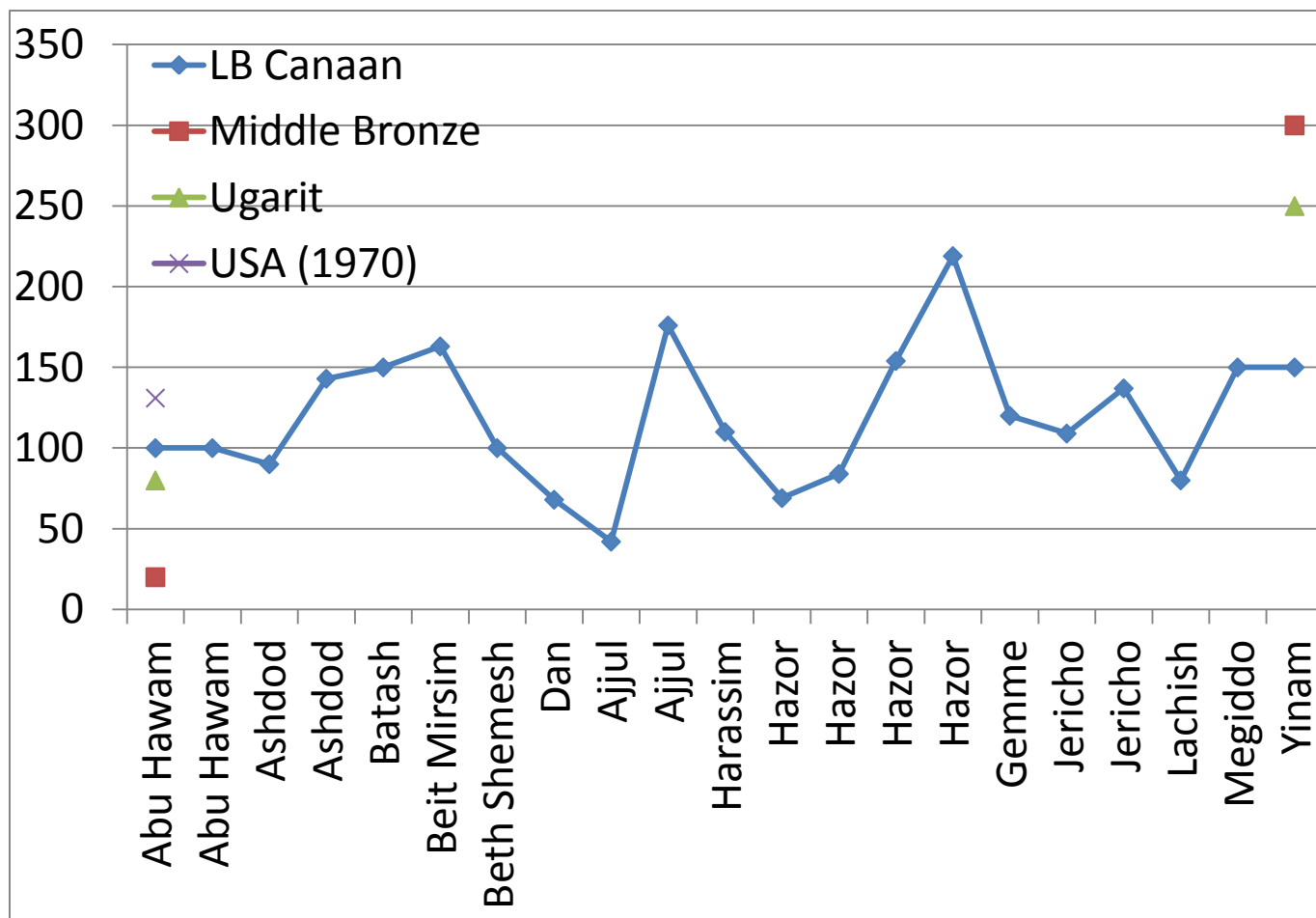
sizes became slightly more standardized in the Late Bronze Age, possibly due to an increased lack of space. Alternatively, some of the houses in the Middle Bronze Age analysis may have been rooms or palaces. A study of 65 Late Bronze Age residences in the northern Levant from 8 sites revealed a range from 42 m² to 475 m², with an average exterior area of 135 m² (McClellan 1997:34).¹⁷ If the massive Alalakh complex is removed from the statistics, the average house size is reduced to 129 m² exterior area—even closer to the average derived from Canaan.¹⁸ Another study which focused on residences of both the Middle and Late Bronze Ages in the area of Canaan estimated the average ground floor exterior area of these buildings to be slightly under 150 m² (Foucault-Forest 1997: 152). This slightly larger average area of 150 m² is due to the inclusion of palatial and multi-family residences, and the possibility that there may have been a higher ratio of extremely large houses in the Middle Bronze Age. An average of all of the above Late Bronze Age houses from Canaan gives a ground floor exterior area of approximately 120 m², and takes into account the variability in both household and house size, demonstrating the usefulness of an average figure to apply on a large scale. In various configurations and exclusions of the largest houses, most of the houses contain around 100 to 150 m² for the exterior ground floor area. Although there are some smaller and some larger houses, a ground floor exterior area of about 120 m² is extremely close at 89% of the 135 m² calculated average of the Late Bronze Age houses from the northern Levant, and by comparison appears to be an accurate approximate number to use in conjunction with various other measurements and equations for calculating residential areas, population densities, and population totals. Although the calculated average ground floor exterior house size from the northern Levant is slightly larger than Canaan during the Late Bronze Age, the differences are minor and may only represent a difference due to the inclusion of palatial residences or counting multi-unit residences as one building. Due to the limited amount of excavated and preserved domestic structures from Canaan in the Late Bronze Age, the sample

¹⁷ The 475 m² exterior area of one residence at Alalakh was considerably larger than any of the other residences, and is almost twice the size of the next largest structure. It is certainly not representative of a normal house in the Late Bronze Age, and if it was not some type of palace, would likely have been a multi-family structure. This particular residence slightly skews the average house size for the northern Levant to a larger area than would have been calculated had it been considered either a palace or a multi-family complex (cf. McClellan 1997: 47).

¹⁸ If two more massive residential complexes of approximately 300 m² each are removed from the statistics, the average for the northern Levant comes to approximately 124 m²—almost exactly the same as Canaan.

size may appear small. However, the agreement with the average ground floor exterior house size from the northern Levant is striking, and strongly suggests the dataset to be accurate.

Graph 3.1 House Ground Floor Surface Area



In addition to overall ground floor surface area, an approximate calculation for interior ground floor area space can be made. Based on three sites from Late Bronze Age Canaan in which both outer surface area and inner surface area were calculated, an average of 64% of the exterior area, equaling about 77 m² can be estimated for the ground floor.¹⁹ If fewer or smaller interior walls were used in a structure, the interior space would rise considerably—perhaps up to 100 m². However, interior space was

¹⁹ Ashdod, Batash, and Beit Mirsim

likely much larger due to the presence of upper floors and the additional interior living space that this architectural design would add. If there were upper floors on the houses in Late Bronze Age Canaan, then the overall methodology does not change, but there is a radical difference in the final data, since ground floor area would only be a portion of the total area for living space in a house (Postgate 1994: 63). Because of the variance in residential buildings, an examination of floor space per residential room is also useful.

An analysis of activity areas in domestic space during the Late Bronze Age and Early Iron Age in the Levant concluded that average room size of Late Bronze Age houses in Canaan was slightly over 10 m², excepting courtyards, which were often two to three times the size of the other rooms in the house (Theoret 2010: 70). At Ugarit in the Late Bronze Age, average room size in all residential districts was very similar—about 11 m² (Garr 1987: 38). But was all of the space in houses from the Late Bronze Age used for people, or was part of it for animals? In a detailed study on the use of domestic space in Canaan, Daviau could not identify housing space dedicated to animals in Late Bronze Age domestic structures (Daviau 1993: 455-56). Thus, the total space inside a house from Late Bronze Age Canaan may be allotted to human living space. The average room size, approximately 1/18th of the average total house size (counting a half upper story and not subtracting interior walls) or just under 1/12th of the total interior surface area (counting a half upper story and accounting for interior walls), can be a useful factor in determining the possible number of residents per building when used in conjunction with data about floor space per person.²⁰

3.3 THE MULTI-STORY HOUSE IN LATE BRONZE AGE CANAAN

The area figures for Late Bronze Age houses have been given in terms of ground floor area. However, excavation data demonstrates that most houses in Canaan during the Late Bronze Age had a second story, or even a third. Holladay, based on data from several excavations and other scholars, proposes that the architectural style of Canaan consisted of complete second stories starting in Middle Bronze Age construction and that this architectural trend continues through the Late Bronze Age (Holladay 1997: 102-

²⁰ With a surface area of approximately 120 m² on the ground floor, half of an upper level on the house would expand the total, average house size to 180 m². Thus, the average interior floor space would be slightly over 115 m². However, the additional space of a balcony—roofed or unroofed—should be noted.

105, 107). “In the densely packed, long-lived urban environment, most houses have a functional plan, but not necessarily a fixed architectural form...LB (and presumably earlier) urban houses are typically multistoried, with no living quarters on their ground floors” (Holladay 1997: 105). Holladay argues that MB IIB house forms persisted into late LB II Canaan, in line with the observed cultural continuity from the Middle Bronze Age into the Late Bronze Age (Holladay 1997: 105, 111). At Ugarit, artifacts recovered in the excavation of houses suggested that domestic activities took place on the ground floor while the living quarters, or bedrooms, were located on the upper floor (Yon 1992: 28). This seems to be true of the southern Levant also, as analysis indicates that commerce and industry was often carried out on the ground floor of houses (Wright 1985: 52; Daviau 1993: 453-56). Another study of Late Bronze Age cities notes that commerce usually took place in the street, next to gates, and near a water source (Baumgarten 1992: 147). An architectural examination of Ugarit in the Late Bronze Age suggested a city with residential quarters that had upper stories and high density housing (Wright 1985: 52, Figure 218). Daviau presents data from wall thickness and artifact finds to suggest that Middle and Late Bronze Age houses usually had roofed courtyards that functioned as domestic rooms, and that most of the residential structures had two stories or perhaps even three (Daviau 1993: 213-218, 384). Since studies have shown that the architectural style of domestic structures in the Late Bronze Age began in the Middle Bronze Age, much of the data from Middle Bronze Age houses in Canaan can be useful for further illuminating houses of Late Bronze Age Canaan (Ben-Dov 1992: 102). For example, a large “patrician house” from Tell Beit Mirsim Stratum D, built with mud brick walls on a stone foundation and dated to ca. 1600 BCE near the end of the Middle Bronze Age, was at least a partially double story residence, and a stele depicting what may have been a serpent deity had been on the upper floor of the house (Kaplan 1971: 295-96; Albright 1938: 41-43). The walls were apparently 1.3 to 1.4 meters thick—enough to easily support a second and even third story (Albright 1938: 36). Although these “patrician houses” were not the norm, the evidence for multi-story buildings in the architecture of Middle and Late Bronze Age Canaan is relevant. Even those houses from the end of the Middle Bronze that may not have had a full upper story, Albright believed that they had “small covered structures on their roofs”

(Albright 1938: 41). This structure, with a date near the beginning of the Late Bronze Age, exhibits similarities with Late Bronze Age houses in the Syrian city of Emar and in typical houses of the Late Bronze Age in Canaan. More importantly, structures from Tell Beit Mirsim in the Late Bronze Age, Stratum C, were well built with double walls—enough to support multiple story houses (Albright 1938: 62). Similarly, at Ugarit several houses from the Late Bronze Age city had one or even two upper floors (Yon 1992: 28, Figures 6 and 8). A house at Taanach from the Late Bronze Age had stone walls about 1 meter thick laid in mortar, which “ensured a second and perhaps a third story,” and “an interior staircase led to the second story” (Beebe 1968: 45-46). Another Late Bronze Age house from Beth-Shemesh also had 1 meter thick walls and a stone staircase leading to the upper story (Beebe 1968: 48). Building 475 from Tel Batash, a house from LB IIA, had a staircase and what appeared to be remains from the second floor (Panitz-Cohen and Mazar 2006: 177). The walls of the Late Bronze Age houses at Tell Abu Hawam were also thick and strong enough to have supported a second story (Ben-Dov 1992: 104). A residential building (66323) at Tell es-Safi (Gath) from LB II had walls about 1 meter thick, easily allowing for second story (Shai et al 2011: 113). A building found at Aphek from Late Bronze II, possibly an elite residence, had walls 1.4 meters thick and a stone staircase leading to a second story built of mud brick was discovered within the house (Kochavi 1974a: 8). Although no houses from the Late Bronze Age in Canaan are preserved to their original height, the usual thickness of the walls for average size houses, about 0.7 meters (although often surpassing that), “indicates that most dwellings had a second storey, reached by a ladder from the courtyard, or by steps adjoining one of the walls” (Ben-Dov 1992: 99; Daviau 1993: 376, 382, 392). Larger or more elaborate building complexes, often called patrician houses or palaces, generally had even thicker walls. Even the housing complexes that appeared to be residences for many average families had some single and double stone walls as the party walls, also used as load bearing walls, which would help in supporting upper stories above the ground floor of the housing complexes (Daviau 1993: 353). In place of or in addition to thick walls, posts supporting an upper floor were also used in some buildings of the period (Daviau 1993: 302). As can be seen from several examples above, stone foundations appear to be the normal architectural style in Late Bronze Age

Canaan, allowing enough strength and structural integrity for the common house to support an additional story, with the remaining walls made of mud brick and supplemented by wooden beams (Gray 1964: 56; Liebowitz 2003: 298). In a study of construction processes of the architectural techniques employed in Middle Bronze and Late Bronze Age Canaan, it is demonstrated that stone foundations are primarily what remains of houses from these periods (Homsher 2012: 1-27).²¹ Thus, houses of the Middle and Late Bronze Age in Canaan were built using an architectural plan that almost always included stone foundations.²² This assured the necessary support for a second story, which likely utilized walls of mud brick. Therefore, from multiple facets of archaeological data, the structural particulars of Late Bronze Age Canaan indicate that houses regularly had an upper story.

3.4 HOUSE TYPES AT LATE BRONZE AGE EMAR

At Emar, Syria, houses all followed a uniform design which included interior stairways, an upper floor built upon at least part of the house, and a rooftop terrace over the rest of the house (Margueron and Boutte 1995: 132-134). Some of the tablets from Emar were even discovered in “a jar imbedded in the ground below floor-level under the stairs of a house,” which further demonstrates the trend of multi-story buildings at Late Bronze Age Emar (Fleming 1995: 140). This uniform house architecture from Late Bronze Age Emar is represented by an extremely useful clay house model, recovered from the Late Bronze Age city, which shows an “elongated building space with an upstairs room opening over a terrace,” and various details “permit comparisons with real architecture” (Margueron and Boutte 1995: 135).

²¹ Also see Faust 2005: 107 for further evidence of this architectural design feature in the Middle Bronze Age, which likely continued at least through the Late Bronze Age.

²² However, structures of mud brick are also able to be recovered and identified through archaeological excavation. Thus, even in situations where a structure or house was not built with stone foundations, the structure can still be discerned, recognized, and measured.



Figure 3.1 Late Bronze Age House Model from Emar. Louvre Museum. Photo Credit: Titus Kennedy

Although Emar is in Syria, northeast of Canaan by quite a distance, the Semitic names of the residents of Emar demonstrates that the city was comprised of a Semitic ethnic group (Margueron and Boute 1995: 135). Further, excavations from Late Bronze Age Syria, especially those of Semitic cities, are useful for comparison because of the close cultural links starting in the Middle Bronze Age in Syria and coastal Lebanon (Bonfil and Zarzecki-Peleg 2007: 27). Emar was influenced more by the Hittites while Canaan was influenced more by the Egyptians, but Late Bronze Age architecture at Emar is very similar to that of Late Bronze Age Canaan, and the ethnic links demonstrate why the domestic architecture city is a useful comparison for Canaan. According to Holladay, houses in Late Bronze Age Canaan were influenced by Egyptian, Syrian, Hittite, and Mesopotamian architecture (Holladay 1997: 104-109). So, slight regional design variants will be manifested, but the overall plans were very similar. Therefore, the parallels from Emar should be considered useful, especially in light of the common Semitic ethnicity of Canaan and Emar. Thus, the evidence for a second or even third story for houses in Late Bronze Age Canaan is clear. While most houses may have had

only one upper floor, and many of the houses may not have had the entire upper floor roofed, the addition of even a single upper story greatly increases the total living space for each house. Unfortunately, there is not enough concrete data to be positive about how much of each house the upper story encompassed. If using the house model from Late Bronze Emar as a guide, approximately 50% of the upper story was roofed, while the rest was likely a rooftop terrace. In other situations, such as large housing complexes or design variants, the entire upper story may have been roofed. Then, in some cases of exceptional building design or limited space requiring the addition of another story, there may have been a second upper story—three total floors of living space in the house. Estimation based upon the Emar house model, previous analyses of Late Bronze Age house plans, and the possible situations mentioned above is the best available method. For an overall average, accounting for the Emar house example, excavation findings and analyses, and allowance for variations in design suggests a conservative, low estimate of 150% of the floor space for the total living area of a house in Late Bronze Age Canaan. In addition to this space, there would still be some type of useable space on the unroofed terraces that would contribute to an overall increase in space for the residents. Thus, approximately of 115 m² total roofed interior living space is estimated for an average house in Late Bronze Age Canaan, with the acknowledgment that in the plausible and even likely situation that the average upper level exceeded 50% of the ground floor, or additional levels existed, the interior housing space would have been greater. Not all residential buildings, or even most, equaled the average house size. Although there was a large variance in construction, the average, established from numerous samples, is useful for calculating the number of houses and the space that they would occupy in a particular settlement.

3.5 VARIABILITY IN “HOUSE” SIZES IN CANAAN AND HOUSING COMPLEXES

In Middle Bronze Age houses in Canaan, the architectural tradition and general design which continued throughout the period and carried over into Late Bronze Age Canaan, the ground floor of houses ranged in area from perhaps as small as 20 m² to a massive 300 m² (Faust 2005: 111). At Ugarit, some Late Bronze Age house sizes also demonstrate a wide range of variants: larger sizes of 250 m² and 143 m² in one section

of the city, while in the center of the town two houses measured 120 m² and 80 m² in ground floor area (Yon 1992: 27). Variance in overall building size would also likely be manifested in the difference between urban and rural sites. While urban and walled sites would have a tendency towards large, contiguous residential complexes, rural sites lacking walls or unbounded by geography would have more available space to retain separation between buildings that housed different families. The necessary spacing of streets in urban centers would also contribute to the lack of additional space, while in rural towns that were not constrained by walls or geographic features, large interior streets would not be as vital. The public spaces and large thoroughfares required in urban contexts affecting overall settlement population density may have been partially offset in the town layout of rural contexts, suggesting that the overall population density of both urban and rural settlements may have been similar.

Faust suggests that the smallest structures ranging in the area of 20 to 40 m² of ground floor area would only have been inhabited by a nuclear family, while the large houses would have accommodated a sizeable extended family (Faust 2005: 113, 116). This idea directly relates to the amount of roofed living space per person in Late Bronze Age Canaan and the capacity of the average house. Daviau considers the large houses of this period with many rooms on the ground floor, such as those with 10 or more rooms, to house extended families (Daviau 1993: 255). Based on ideas about living space per person and the layout of many of the structures, this is logical. In the case of the large “houses,” however, it is also possible that some of them were residential communities, similar to modern housing complexes of contiguous buildings, and they likely consisted of more than one family group. A large residential structure (66323) from LB II at Gath (Tell Safi), measuring about 240 m², compares in overall size to “patrician houses” and “governor’s residences,” but its wall width conforms to standards of a private building, while some finds indicate public or special use in certain areas; the mix of traits suggests that the building was possibly a housing complex for multiple families where religious or cultic activities also took place (Shai et al 2011: 119, 128-31). According to derived averages, the building may have accommodated two families and their servants, in addition to a small shrine. However, current available data is not sufficient to determine the number of families in the complex. The buildings may have

been intentionally designed like this when originally built, or it may have been later modification due to cultural factors or population needs. For example, at Ugarit during the Late Bronze Age, “an increase in the urban population toward the end of the 13th century is visible in reduced habitation space per individual: large houses were divided into several small ones and open areas tended to be filled by small structures” (Yon 1992: 21). The division of houses may also have been due to remodeling or possibly movement or reduction of a family and selling of their portion of the housing complex. Additionally, as a result of the limited space inside the city for new construction, purposeful building design, or the need for buffer zones between houses, it appears that many of the houses shared common walls and no master plan is discernible (Yon 1992: 27). Excavations at Tell Beit Mirsim also demonstrate that common walls existed for many houses in cities in Middle and Late Bronze Age Canaan, further complicating the division of individual housing units, but also reducing the area taken up by walls and increasing the available living space (Albright 1938: 33; Plate 52). One important indicator of a multi-family or multi-household complex in one contiguous building is the presence of multiple ovens (Daviau 1993: 315). Tell el-Ajjul in the Middle and Late Bronze Ages also had *insulae* of buildings and shared walls, following what appears to have been a common design element in residential areas, as did Beth Shemesh during the Late Bronze Age (Petrie 1931: Plate LIV; Daviau 1993: 361; Wright 1985: figures 59 and 60). The example of multi-family housing complexes at Late Bronze Age Ugarit, just outside of Canaan but in the same cultural sphere, and from sites in Canaan proper, demonstrates that each separate domestic structure in Canaan cannot always be considered one housing unit. This causes complications when attempting to assign each building to a nuclear family, since the archaeological data indicates that most buildings were made up of multiple households with connecting walls. At Emar, as in many cities to the south in Canaan, groups of houses adjoining each other formed blocks or *insulae*, and the houses all followed a uniform design (Margueron and Boute 1995: 132-134). Thus, analysis of the few clear examples single family homes, averages of house sizes, and calculations of approximate household floor space per person is collectively the most accurate methodology for determining the probable number of residents in contiguous housing units or *insulae* of Late Bronze Age Canaan.

Additionally, some houses were built using the city wall as a house wall. Some of the houses at Megiddo in Late Bronze Age Canaan were built up against the city wall, substituting the city wall for a house wall (Loud 1948: Figures 378-379). A Middle Bronze Age house excavated at Beth-Shemesh also used the city wall as the south wall of the house (Beebe 1968: 46). From the final phase of Bronze Age Jericho IVc, either at the Middle Bronze to Late Bronze transition, or in Late Bronze I, houses were excavated that had integrated their walls into the wall of the city (Sellin and Watzinger 1913: Tefel III). The same phenomena was observed at Shechem, with House 640 also being built into the city wall in Middle Bronze II with a row of three adjacent houses built up against the wall, then later replaced in the Late Bronze Age by another residential complex (Ussishkin 1989: 49; Wright 1985: 45). These *insulae*, at least when built in areas where space is scarce and urban planning was not done, often follow the pattern of the streets and do not conform to a certain plan or number of houses (Yon 1992: 27). This tendency towards housing complexes conforming to the existing street patterns and buildings is also evident at Late Bronze Age Hazor in Area G, where variation in size of houses and *insulae* is evident (Ben-Dov 1992: 104). These architectural trends persisted through the Late Bronze Age in Canaan, making it impossible to place a city from this period on a grid system or to count individually separated housing units. However, data from average house size and average room size integrated into the residential area of a city will allow an approximate figure for total housing units, and thus total population.

3.6 DOMESTIC ARCHITECTURE IN CANAAN FROM THE HEBREW BIBLE

Three books of the Hebrew Bible situating the culture, geography, and events in the Late Bronze Age—Deuteronomy, Joshua, and Judges—address domestic architecture that was built or would be built in Canaan. If the Israelites adopted many aspects of material culture from Late Bronze Age Canaan, including domestic architecture, the descriptions of specific house features claiming to come from that period may be a useful comparison.

Deuteronomy 22:8 instructs builders of new houses to construct a fence or parapet (מַעֲקֶה) around the roof so that no one walking upon the roof or top (גַּג) of the

house would fall off and be injured or killed. The word translated “fence” or “parapet” only occurs once in the Hebrew Bible and seems to imply a structure that restricts movement, likely relating to a verb meaning to hinder (Brown, Driver, and Briggs 2000: 785). The word translated “roof” or “top” is often used of the roof of a house (Brown, Driver, and Briggs 2000: 150). Walking on the roof or top of the house conveys the idea that people were using the roof area of a house as some kind of living space. This roof space with a fence around the edge may have been on the top of a second or even third story, if following the Canaanite architectural patterns of the Late Bronze Age. Falling off of a single story house (perhaps around 2 meters in height) may not normally result in death, but falling off of the roof of a double or triple story house (approximately 4 meters or 6 meters) could be potentially fatal. This suggests that the Israelite construction techniques being described in Deuteronomy, perhaps adopted from Middle and Late Bronze Age architectural techniques in Canaan, applied to multiple story houses.

Joshua 2:6 describes the house of Rahab in Jericho, a city of Canaan. Rahab’s house has a roof or top (גַּג) which accommodates storage of flax and men hiding. If describing the general architecture of domestic structures in Late Bronze Age Canaan, this suggests again that a roof could be potentially used as living and storage space, and can be at least partially considered in the overall living space of a house.

Judges 3:20 describes the house of Eglon as a residence which had an upper room or a roof chamber (עֲלִיָּה) above the ground floor. The word denotes a room that is above, and seems to imply that it was the highest part of the structure (Brown, Driver, and Briggs 2000: 751). This could have been a second or even third story consisting of one large room, or one particular room on the top story. Either way, the description makes it clear that there was living space above a ground floor, and living space which had a door and windows, and likely its own roof. This agrees with the architectural idea of Late Bronze Age houses in Canaan having multiple stories for living space.

Again in the story of Rahab, Joshua 2:15 describes the necessity to lower the men out the window and down to the ground by rope because the house was partially built into the wall (בְּקִיר הַחוֹמָה). The phrase indicates that the wall of the house was integrated into or using as a wall the fortification wall of the city (Brown, Driver, and Briggs 2000: 327, 885). If describing architectural traditions of Late Bronze Age

Canaan, this indicates that some houses were constructed using the city wall as one (or two if located on a corner) of the walls of the house. This has no effect on the overall living area of the house, but it does reduce the overall space taken up by a house or an insula of houses in a city because of the wall integration. Thus, not every house wall in a city needs to be deducted separately do arrive at the correct overall residential floor space. This architectural design element, as mentioned previously, was evident at multiple sites in Middle and Late Bronze Age Canaan (cf. Loud 1948: Figures 378-379; Sellin and Watzinger 1913: Tefel III; Wright 1985: 45).

These sections from Deuteronomy, Joshua, and Judges, purportedly describing residential architecture in Canaan, demonstrate that the Israelite understanding of residential architecture from that period and area included multiple story houses, rooftop usage space, and that some houses utilized the city wall as a house wall. Since Canaanite architecture, like other aspects of material culture, would have influenced Israelite architecture, the Israelites likely adopted many architectural design elements of Late Bronze Age Canaan and remained familiar with these designs into the Iron Age.

3.7 RESIDENCES OF PRIESTS AND OFFICIALS

The royalty, rulers, and elite of cities and villages lived in much larger residences, often called palaces or patrician houses, with a higher frequency of artifacts indicative of wealth. Priests may have lived in the temple that they worked in, although it is difficult to be definitive. These religious and palatial districts of a site are separate from the residential quarters and are not as critical to estimating the overall population. However, general possibilities and building sizes should be noted.

A text from Late Bronze Age Ugarit that is of particular interest on the issue of priest residences mentions that the animals referred to earlier in the text are to be sacrificed at the house of the priest (Pardee and Lewis 2002: 52). This text, and the idea that priests were responsible for the temple, in addition to performing various duties and receiving tributes at the temple, suggests that it would have been logical for the priest to reside at the temple or in a room adjacent to it. If most priests did not have their own houses, then the temple would have been a multifunctional building that was also used as a residence—just as houses were also used for private business and the

palace was also used for official matters. Temples of this period varied in shape, but were not typically larger in size than impressive houses of the time (Mazar 1992: 162, 174). The largest temple of this period, the Shechem temple, was used into the Late Bronze Age and covered approximately 558 m² (Mazar 1992: 164-165). However, this size was not typical. The Area H temple at Hazor, which was used in both the Middle and Late Bronze Ages, covers approximately 360 m² and can still be considered a large temple (Mazar 1992: 165). Other temples, such as Building 50 at Tell Abu Hawam, only occupy about 83 m² of ground space (Mazar 1992: 172-173). In the Late Bronze Age, there appears to have been a general decrease in the size of the temples from the previous period (Mazar 1992: 178). Thus, some temples may have only required one priest or priestess and perhaps some servants, while the larger temples may have required multiple priests or priestesses and many servants. The temples and the temple precincts can be subtracted from the residential area of a site, but the possibility of temple workers living in the temples should be factored into the final population numbers of a site.

Late Bronze Age palaces in Canaan were modest and architecturally similar to two or three houses of the region placed together, while in contrast the palaces in north Syria were massive (Wright 1985: 57). The size of royal or elite residences in Late Bronze Age Canaan varied widely, and each site is better dealt with individually by attempting to discern the portion of the city that was used for public, administrative, or religious buildings. One large example at Megiddo, palace 4031, a royal complex which continued into the Late Bronze Age, covered an area up to 1,000 m² (Oren 1992: 106). This particular structure exhibits the potential massive size of some of the palaces in Canaan during the Middle and Late Bronze Ages.²³ Within these palaces, the ruling family, their servants, and probably at least some of the extended family would have lived. Although this type of building covered a large surface area, it was also inhabited by many people. The density may have been considerably lower than that of an average house, but palaces were not devoid of residents.

²³ Still, in relation to an entire site, even a palace complex of this size would not radically alter the total population size. For example, in a 10 hectare site, a palace complex of this size would only cover 1% of the total area. At sites where the size of a 1,000 m² palace complex would significantly reduce the overall population density, such as a 1 hectare or smaller site, palatial structures of this magnitude are unlikely to have existed, and none are yet known from sites of 1 hectare or less.

3.8 CONCLUSION ABOUT HOUSE SIZE

Although there was wide variance in residential structure size due to wall sharing and limited space in cities and towns, especially walled settlements, data from separate housing units and room measurements allow average measurements for a housing unit to be derived. Further, analysis of excavated residences and the Emar house model demonstrates that houses in Late Bronze Age Canaan had one or two upper levels, and this architectural design element increased the overall living space in a house by at least 50% on average. Thus, an average, individual housing unit accounts for approximately 120 m² of occupied ground surface area, likely contained about 115 m² of interior living space, and the average room may have had around 10 m² of area. Palaces were much larger, but usually restricted to certain areas of the city such as the acropolis, city center, or next to gates. Temples, while usually not much different in size than many houses, would not have had the same population density. By integrating this data with average family size and floor space per person, an average number of people per housing unit can be determined. Further integrating this data into the overall size of a site, times the residential percentage which would exclude palaces and major temples, minus streets and large fortifications, a total population number for each settlement can be discovered.

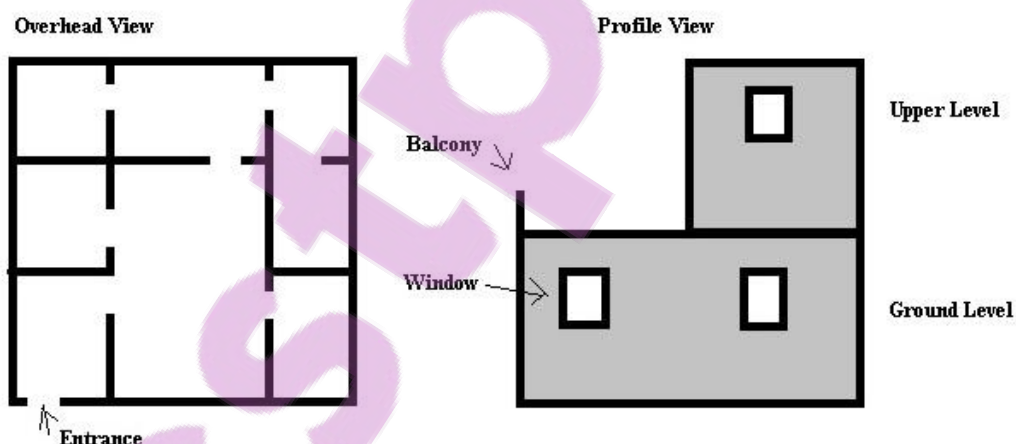


Figure 3.2 Composite Plan of a Theoretical Late Bronze Age House in Canaan.²⁴

²⁴ Based on multiple excavated examples throughout the region.

CHAPTER 4

FAMILY AND HOUSEHOLD SIZE IN LATE BRONZE AGE CANAAN

4.1 INTRODUCTION

In order to estimate the population of a particular settlement in the Late Bronze Age, and on a larger scale Canaan as a whole, one must determine an approximate number for the size of a nuclear family and the size of a household during the period. To do this, I propose the method of utilizing Late Bronze Age texts with data relevant to family composition and size to observe family size trends and arrive at a theoretical average nuclear family size for the period.²⁵ This family size average and household size average can then be checked against previous ethnographic studies to ensure the likelihood of reliable figures for both average family and household size in Late Bronze Age Canaan. Additionally, the residential population of temples and the garrison or army sizes in towns of Canaan during the Late Bronze Age can be estimated with the assistance of documents from the period, and then factored into the overall population total of a particular settlement.

4.2 DOMESTIC SLAVES IN LATE BRONZE AGE CANAAN

In the Late Bronze Age Levant, slaves were a part of the household and thus are relevant to a study of household population, city population, and regional population. However, the term “slave” must be distinguished from the term “servant” in this context in order to avoid confusion.²⁶ During the Late Bronze Age, many households, possibly even the majority of them, owned domestic slaves; this is clear from numerous texts of the period. People often became slaves due to capture in war, the sale of children by their parents, and enslavement due to defaulting on a debt (Mendenhall 1946: 76). Texts from Nuzi record the selling of children into slavery by their parents (Mendenhall 1946: 76-78). At Alalakh, addition to the slave populations was sometimes the result of

²⁵ Garr proposed utilizing this method in a population study of Late Bronze Age Ugarit (Garr 1987: 32-34).

²⁶ The term slave rather than servant will be used in the context of domestic ownership to distinguish between “servants of the king,” which could include everyone in the city-state, and “slaves,” which were the property of or under the complete control of their master, specifically here in a domestic context. The status of “slave” in the ancient Near East is often only determinable by context.

war captives, but most often slavery appears to have occurred due to a person defaulting on a debt (Mendelsohn 1955: 66-69). At Ugarit, there is also documented foreign slave dealing in addition to the mention of domestic slaves (Singer 2011: 77-78). The practice of domestic slavery is also paralleled in the Hebrew Bible (e.g. Exodus 20:10, 21:1-7, 21:20-32, 23:12). In the context of Late Bronze Age Canaan, several cuneiform letters mention slaves that are given as contributions or gifts, and include male slaves, female slaves, and war captives (Moran 1992: EA 99:10-20, EA 120:21, EA 268: 15-20, 288:16-22; Albright 1944: 23-24, Taanach Letter 5: 9-15). However, it is important to distinguish a slave from a servant in Late Bronze Age Canaan, as a servant could include anyone under an authority figure, such as a king, mayor, or god. Numerous times the rulers or mayors of the city-states in Canaan refer to themselves as servants of the king, exhibiting the importance of making this distinction (e.g. Moran 1992: EA 100:20-32, EA 101:32-28, EA 103:1-5, EA 140:1-5, EA 141:1-5, EA 144:13-21, EA 156:1-5, EA 156:1-8, EA 201:1-9, EA 287:1-4, etc.). The issue is not one that can be solved merely through linguistic analysis of the ancient texts, as many terms can be used to refer to a type of domestic “slave,” but often the basic ancient term is used interchangeably to mean either “servant” or “slave,” depending upon the context, in Akkadian, Ugaritic, Hebrew, and presumably Canaanite (Black, George, and Postgate 2000: 2, 434; Gordon 1998: 452-453; Brown, Driver, and Briggs 2000: 713).²⁷ Thus, to distinguish between a servant of the king and a slave, all members of households who are owned by a member of the household will be referred to as slaves, even though many studies and translations may refer to these people as servants or domestic servants.

4.3 FAMILY SIZE IN LATE BRONZE AGE CANAAN FROM ANCIENT TEXTS

Although prominent cities of Canaan such as Hazor, Megiddo, Lachish, and Ashdod have not yielded texts from the Late Bronze Age that contribute information about family size in Canaan, some tablets from Amarna, Ugarit, Alalakh, and Emar have data relevant to this subject. The Amarna Letters describe families within Late Bronze

²⁷ See for example uses in the Amarna Letters and the texts from Ugarit, in which the same term can be used of “servants” of the king and domestic “slaves.”

Age Canaan, while tablets from Ugarit, Alalakh, and Emar describe either Canaanite families or families from the Late Bronze Age Levant—a comparable cultural and social sphere.



Figure 4.1 Late Bronze Age Tablet (Amarna Letter of Abdi-Heba). Photo Credit: Titus Kennedy

4.3.1 Alalakh

Several texts from Alalakh recovered from the Late Bronze Age, 15th century BCE city mention members of various families. At Alalakh during this period, names of the rulers “may indicate that they were predominantly Semitic” although it is also possible that many of the forms were Hurrian (Wiseman 1953: 10). Many Semitic names, the location of Alalakh in the Levant, and the architecture similar to that of Canaan makes Alalakh in the Late Bronze Age a useful source for parallel demographic data about family size and household size in Canaan during the Late Bronze Age. From these texts, data for nuclear family size can be gleaned.

ATT/39/36 mentions 2 sons of a debtor entering the service of the king for security and names them, thus demonstrating that this nuclear family had at least 4 members, not counting daughters (Wiseman 1953: 40). ATT 39/134 mentions a man,

“his wife and sons” (Wiseman 1953: 41). This equals a nuclear family of at least 4, without daughters, but possibly even more as the plural “sons” allows for two or more sons. ATT/39/140 mentions a man, his brother, and his sister, indicating a nuclear family composed of at least 5 with their parents included (Wiseman 1953: 41). ATT/39/32, ATT/39/135, ATT/39/116, and ATT/8/61 each mention members of separate families consisting of at least a man, his wife, and his sons, again amounting to a nuclear family of at least 4 even without any daughters mentioned (Wiseman 1953: 42-43, 46). ATT/8/47 mentions a husband, wife, heir son, a slave, and five other children including at least two daughters. This nuclear family consisted of at least 8 members, and additionally had slaves in their household (Wiseman 1953: 53-54).

Like Ugarit, tablets from Alalakh recording family data often omit the mention of daughters, or even females in general.²⁸ Females are not mentioned in most contexts unless they are directly involved, such as the buying of a female slave by a female in ATT/39/71 or the purchase of a girl slave ATT/8/60 (Wiseman 1953: 50-51). Marriage contracts indicate that it was common practice for men in Alalakh to marry a second or even third wife if their first or second wife bore no children or even daughters (Wiseman 1953: 54-55). Texts such as these not only make it clear that there was a substantial female population, but that at times the nuclear family could consist of multiple wives and even more daughters than sons. An approximately equal gender distribution ratio means that on average a family would have had as many daughters as sons. The skeletal and survey data from human populations spanning various time periods and geographic regions suggests this approximate 1:1 gender ratio to be a constant.²⁹ The modern gender ratio overall for the world is approximately 1.01 male/ female, with a slightly higher ratio of males at birth close to 1.06 males/female (Grech et al 2002: 1010-1011; cia.gov/library/publications/the-world-factbook/geos/xx.html). Due to the death of males for a variety of reasons, the gender distribution ratio balances out nearly exactly. In the world of Late Bronze Age Canaan, males would have been more likely to die from increased exposure to disease, agricultural and livestock accidents, hunting accidents, construction accidents, murder, drowning, and warfare. This indicates that

²⁸ There is no evidence to indicate a proclivity towards female infanticide in Late Bronze Age Canaan, but rather that females were not mentioned as often in texts of the period.

²⁹ See Chapter 5: Life Expectancy and Gender Distribution in Late Bronze Age Canaan.

the gender distribution ratio of adults in families of the Late Bronze Age Levant would have been approximately even or even skewed towards females. Thus, nuclear families with two or more sons would usually have had two or more daughters; the average size of these nuclear families would have been six to seven people.

Household or family slaves are also frequently mentioned at Alalakh, further increasing the total per household population. For example, ATT/39/150 mentions a house being sold with its female slaves, thus demonstrating the common use of household slaves and their status as property (Wiseman 1953: 49). Other texts, such as ATT/39/71, ATT/8/60, and ATT/8/47 mention the purchase of slaves or the presence of slaves as property of a particular household (Wiseman 1953: 50-54). This increases the per household population beyond merely the nuclear or extended family, although the data at Alalakh is insufficient to estimate an average number of slaves per household.

4.3.2 Emar

The usefulness of comparative demographic data for Late Bronze Age Canaan is similar at Emar. Inheritance text No. 6 from temple M1 at Emar describes a man with his male slaves, female slaves, wife, and three sons (Dalley and Teissier 1992: 103-104). No daughters are mentioned, although there may have been at least one that the text did not specify due to cultural particulars. We do positively know that this nuclear family had at least 5 people, plus at least four or possibly at least six slaves (the dual is not used, so it is possible that the plural here refers to three or more of each male and female slaves). A house sale document from Late Bronze Age Emar (TBR 65) mentions a husband named Abi-kapi, his wife Adama-ili, and their four children (Westbrook 2001: 24). No slaves or extended family are mentioned, but the nuclear family appears to consist of six people (unless Abi-kapi had multiple wives, in which case the size of the family would have been slightly larger).

4.3.3 Ugarit

From Ugarit, the Legend of Keret describes the king as having eight daughters, eight sons, and one wife at a time, amounting to a nuclear family of 18 (Ginsberg 1946: 14, 35, 41). This is likely a mythical story, but it may also be that the demographic data

about sons and daughters reflects society in Ugarit during the Late Bronze Age. Although Keret is royalty and the demographic data may not be directly applicable to the average household in Canaan, it is useful for the analysis of family and household size in elite society.

At Ugarit, estimates of family size from census lists suggest that during the Late Bronze Age, about four adults lived in each household (Garr 1997: 34; Heltzer 1976: 110-112). Garr and Heltzer arrived at the estimation that an average household in Ugarit had between five and six members, not including workmen, slaves, elders, or other dependents (Garr 1997: 34; Heltzer 1976: 111).³⁰ Other Ugaritic texts that contain demographic information about specific families in the kingdom of Ugarit unfortunately do not have comprehensive family information and are often fragmentary. They are, however, still useful for analyzing general trends of Late Bronze Age families in the Levant. Many lists recording families omit mention of any daughters (Gordon 1998: Text 1080, 2044, 2068). Obviously Ugarit was not a city-state that only had males, as all of the wives listed demonstrate this, but apparently the specific nature of these lists and the culture made omitting the mention of daughters, and often women in general, standard (Marsman 2003: 685). Many of the lists recording information about families, which also often include the mention of cattle, record the head of the family, the wife, and sons. Slaves are sometimes mentioned, and occasionally multiple wives. If each family had approximately as many daughters as sons, and factoring in the occasional mention of more than one wife, the nuclear families would generally have been between four and eight members. A list that appears to be a departure from the normal practice of omitting certain females, in that it specifically mentions daughters, records a man and his four daughters, then another man with three sons and one daughter (Gordon 1998: Text 2080). If we may assume that each man had at least one wife, then we may place the population of the nuclear family at six or more people. Another tablet (Text 2081) mentions 14 slave boys, four wives, one maiden, and one boy. Here the nuclear family appears to have consisted of at least seven people, due to the multiple wives. These aforementioned texts also make it clear that many families in Ugarit had slaves, that the

³⁰ Garr devotes a section to analyzing the possible number of people in a nuclear family at Ugarit, and a short discussion of how other dependents and slaves would have not been included, but then does not use any of this data for a population estimate.

texts omit the elderly, such as grandparents, and most of them also appear to omit young children.

4.3.4 Amarna

Although the content of the Amarna Letters is primarily political, there are multiple mentions of the members of various families in Canaan throughout the tablets. Rib-Hadda of Gubla mentions two of his sons and two of his wives, and the language indicates that these were not all of his sons or all of his wives (EA 136: 37-46). With only what he mentions, the nuclear family consisted of five people, although likely many more. As leader of a city, he would have been considered part of the elite class, and his multiple wives (and probable larger family as a result) may reflect that. In a letter about events in Tyre, a sister and her daughters and sons are mentioned (Moran 1992: EA 89: 15-29). The number of children is not specified, but there were at least two sons and two daughters, making that a nuclear family of at least six people. Aziru of Amurru mentions the giving of two of his sons as attendants (Moran 1992: EA 156: 9-14). Thus, he had at least two sons and a nuclear family of at least four. Since the family information is only fragmentary, it is possible that the family was larger than four, but no smaller. Lab'ayu is noted as having two sons, although whether or not he had daughters or more than one wife is not mentioned (Moran 1992: EA 246: rev. 1-11). Lab'ayu mentions "my wife" once in a letter to Pharaoh (Moran 1992: EA 254: 38-46). If Lab'ayu only had one wife, the nuclear family consisted of at least four people. In another letter, a list of people who are supposed to be delivered to Pharaoh as prisoners, an unnamed man only described as the son-in-law of Manya is mentioned along with his sons and wives (Moran 1992: EA 162: 72). This particular nuclear family had no less than five people, but there may have been substantially more due to an unknown amount of sons, multiple wives, and the non-mention of daughters. Other men of Canaan—Milkilu and Abdi-Ashirta—are mentioned as having sons or two sons, amounting to nuclear families of at least four, without daughters included (Moran 1992: EA 270: 17-23; EA 273: 15-24; EA 362: 66-69). Another letter from Biryawaza specifies that he had multiple wives and a daughter-in-law (Moran 1992: EA 196: 27-33). Thus, there were at least four total people in the nuclear family, but due to the multiple wives he likely had

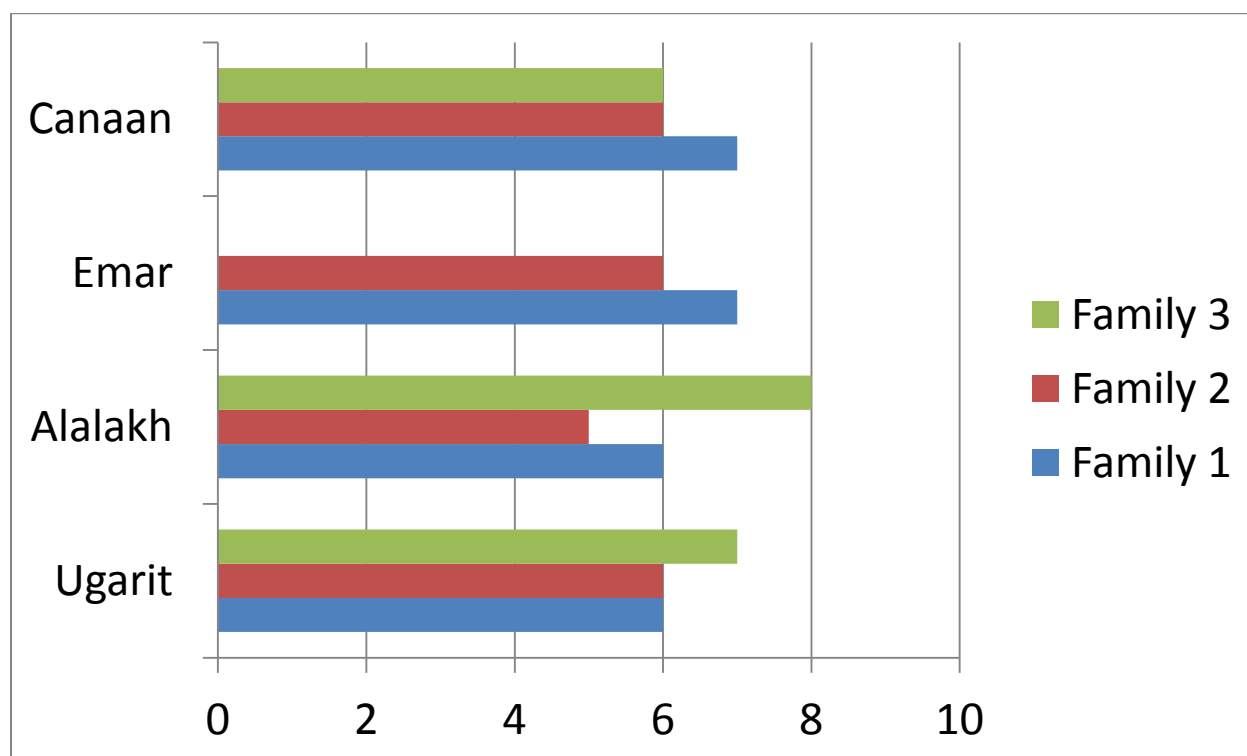
more the one son whose wife is mentioned. The trend of omitting mention of daughters is apparent in the Amarna Letters, indicating that the families were larger than the minimum number accounted for in the texts. The omission of daughters in some of the letters is likely due to the political subject matter certain texts where daughters were not relevant, while the mention of daughters in other texts tend to reflect personal or social situations.

Table 4.1 Nuclear Family Size from the Late Bronze Age Levant

| Location | Minimum Number in Nuclear Family | Notes |
|-----------------|---|---|
| Alalakh | 4 | (6 families, no daughters mentioned) |
| Alalakh | 5 | (possible additional children and wives) |
| Alalakh | 8 | |
| Emar | 5 | (no daughters mentioned) |
| Emar | 6 | (four children mentioned) |
| Ugarit | 18* | (King Keret) |
| Ugarit | 4 | (list average, no daughters mentioned) |
| Ugarit | 6 | |
| Ugarit | 6 | |
| Ugarit | 7 | |
| Beirut | 5 | (no daughters mentioned) |
| Tyre | 6 | (no daughters mentioned) |
| Amurru | 4 | |
| Shechem | 4 | (no daughters mentioned) |
| Unknown | 5 | (no daughters mentioned) |
| Gezer | 4 | (no daughters mentioned) |
| Amurru | 4 | (no daughters mentioned) |
| Damascus | 4 | (only multiple wives, daughter-in-law) |
| Average | 6.1 minimum | (adding 2 daughters to son only lists) |

*Royal family from literary text. Not counted in minimum average for family size.

Graph 4.1 Comparison of Nuclear Family Size by Region in the Levant



4.3.5 Conclusions from the Family Data

From 22 different texts with data about nuclear family size, the minimum average (with the addition of two daughters to lists only mentioning sons) equals 6.14 members per nuclear family. If a 1:1 sex ratio were maintained for sons and daughters, then the average would be slightly higher.³¹ While the above data cannot be used as a scientific and comprehensive census for Canaan in the Late Bronze Age, it is useful to derive approximations and trends for nuclear family size, which allows a theoretical average to be calculated based on Late Bronze Age data. The above family numbers, excepting King Keret, indicate that with sons mentioned and only in rare cases daughters mentioned, there were between a minimum of 4 and 5 people in the nuclear family on average. If an average of two daughters per nuclear family is used, even for families known to have more than two sons, then a useable average nuclear family size emerges. To allow for the trend of omitting mention of females in many texts and the

³¹ For the burial data addressing sex ratio in Late Bronze Age Canaan, see Chapter 5. According to the data, there was an approximately even sex ratio with a slight skew in favor of females. Thus, the projection of an approximately equal amount of sons and daughters as a regional average is supported by the evidence.

approximate, theoretical 1:1 gender distribution ratio, two daughters are added per average family and the total number of people in a nuclear family generally amounts to between a minimum of six and seven people. This nuclear family size is also supported by a literary text from Ugarit describing the marriage of Nikkal to Yarikh, in which the family of Nikkal is mentioned; the family consists of a father, mother, at least two sons, and at least two daughters (Van Selms 1954: 28; Text 77:33-37). This may be an ideal family size reflected in literature that had its roots in the culture. The number of people listed in the family of King Keret, while much higher than the other averages, may be useful for calculating the approximate size of royal families in a city-state and applying that to palaces. Estimates of ancient Mediterranean extended patrimonial families agree that the household had between six and ten residents, including dependent relatives outside the nuclear family and possible slaves (Casana 2009: 30; cf. Schloen 2001: 115–33; Garr 1987: 34; Heltzer 1976: 111). The above data from ancient texts suggests that with the addition of relatives outside the nuclear family, in Late Bronze Age Canaan the number may have been slightly higher. The ancient documents appear to agree with the general idea that nuclear families in the Late Bronze Age Levant and even Canaan specifically, on average, consisted of at least six people, plus slaves and elderly relatives. Thus, average households could have consisted of approximately eight or more family members and a variable amount of slaves. If there were at least two slaves on average, but generally no more than one slave per family member, the average household would have been composed of 10 to 14 people total. This suggests the average to use for a household inclusive of all family, dependents, and slaves in Late Bronze Age Canaan is a total of 12 people. According to the study on house size, the proposed average of residential roofed living space in each housing unit of Late Bronze Age Canaan is 121 m².³² At an average of 12 people per household or housing unit, this would equate to approximately 10 m² of roofed living space per person. Presumably, the slaves would have less space, leaving the family members with a slightly higher number. In an older ethnographic study of pre-industrial villages, Narroll proposed a worldwide average of 10 m² of dwelling space per person which he hypothesized could loosely apply to pre-industrial societies (Narroll 1962: 587-89).

³² cf. Chapter 3 on house size in Late Bronze Age Canaan.

However, subsequent studies argued that this space allowance was considered to be too great for urban and large settlements because the data was derived from rural villages and settlements under 5,000 residents (Kolb 1985: 583, 590). In a study of residences in Nippur during the Old Babylonian Period, one scholar calculated the roofed living space per person to be only 5.31 m² (Stone 1981: 32). Refinements of Narroll's original theory lean towards a pre-industrialized society average for dwelling floor space per person somewhere between 4.7 and 7.5 m², or a more basic average of about 6 m² per person (Brown 1987:1-49; Kolb 1985: 590). These calculations are slightly over half of the suggested roofed living area per person average for Late Bronze Age Canaan. However, when one factors into the 10 m² average in Canaan that some floor space was taken up by ovens, storage, furniture, and possibly commercial or industrial installations, the actual useable floor area would shrink. The true roofed living area per person would likely fall somewhere between Narroll's average and subsequent refinements, but an exact number cannot be discovered due to lack of ancient data. Because those details cannot be accurately factored, a general roofed living area constant will be used. In practical application, the actual useable living space per person inside the house would have been close to the above proposed constants. The advantage of having averages for Canaan that apply to both total house surface area and all living space underneath a residential roof is that limited excavation data, such as interior walls, posts, and domestic installations will not negatively affect the outcome of population calculations since a regional average may be applied from sample structures. This roofed place per person average, along with a housing unit size average, can be used in conjunction with overall site size, residential quarter percentage, and adjustment for streets, walls, and public areas to obtain a site population total and overall site density.

4.4 GARRISON SIZE

Cities in Canaan during the Late Bronze Age needed defense against attack. Besides walls, towers, ramparts, and other defensive structures to keep attackers from penetrating into the city, an army, militia, or garrison would have been stationed in the city to fight off attackers or even to launch the occasional offensive. The Amarna Letters

and Egyptian military documents make it clear that many cities in Canaan had garrisons during the Late Bronze Age, and several of the passages explicitly state how many fighters were in the garrison or how many were requested to reinforce that particular city.

According to a message of Abdi-Heba, garrisons were sometimes housed in the palace or residence of the city ruler (Moran 1992: EA 289: 25-36). As some of these palaces were over 1000 m² on the ground floor, they could conceivably accommodate a force of 100 to 400 men, depending on building size and crowding conditions of the barracks. From the following letters, it is apparent that the general size of a reinforcement request was between 100 and 400 men, plus horses. Biridiya of Megiddo makes a request to the Pharaoh to send a garrison of 100 men for reinforcing the city against an attack led by Lab'ayu (Moran 1992: EA 244:25-33). As Biridiya is already engaged in war, they must have had some army or garrison already, and the requested 100 soldiers is for additional reinforcement. In one instance, Rib-Hadda requested 50 pairs of horses and 200 infantry to resist the attacks of Abdi-Ashirta until the archers come (Moran 1992: EA 71: 23–27). These troop reinforcements are for defense until the archers arrive, and likely there was already a local militia that was carrying out defense of the city; perhaps the local militia fighters are who the 50 pairs of horses were for. Each pair of horses was for a chariot, which would require at least 100 men to operate. Thus, this city would have had at least 100 men in the militia who were able to use chariots, before the reinforcements of an additional 200 infantry. As the chariot users are generally believed to be a separate class from infantry, the city may have had additional ground troops in their garrison. In another letter, Rib-Hadda again writes about men for city defense; this time he only specifies the 200 men (Moran 1992: EA 95: 34-43). Rib-Hadda makes yet another request, this time for a total of between 100 and 200 soldiers and 50 chariots to guard the city while he leaves (Moran 1992: EA 132:51-59). The most ambitious request that Rib-Hadda makes for reinforcements asks the Pharaoh to send a garrison of 400 men and an unknown amount of pairs of horses (Moran 1992: EA 76: 17-29). An additional 400 men and horses to operate chariots may have been seen as an ideal number to reinforce the city against attack, as it is the highest number requested by Rib-Hadda. This request is probably repeated in another

letter, but the number of 400 men and 30 pairs of horses is based on how many troops were given to Surata of Akka (Moran 1992: EA 85: 16-22). Since these additional 400 men and 30 pairs of horses were given for the defense of a city, it suggests either a large size for defensive reinforcing troops in proportion to urban population, or a large urban population. If a fortified, large sized theoretical city in Canaan had a population of around 10,000 in Canaan, then 400 reinforcing troops is equal to 4% of the population. Factor in the local militia, probably small or poorly equipped due to Egyptian dominance, and perhaps 5% or more of the total city population would be part of the garrison or army. Although the reinforcing garrisons mentioned in the Amarna Letters are a maximum of 400 troops, some of the more prominent cities in Canaan may have had a much larger local garrison. An Egyptian campaign text relevant to army size in a city records the spoil of Megiddo after the victory by Thutmose III; the text states that 924 chariots, 200 suits of armor, and 507 bows were looted by the Egyptians (Breasted 1906a: 187). Each chariot required at least two soldiers to operate, and some of the chariots may have been destroyed in the battle, thus would have been at least 2,000 men fighting in the Megiddo chariot core. Next, the 200 suits of armor indicate an additional infantry of at least 200, while the 507 bows indicate that the city had over 500 archers. In total, the army of Megiddo would have included at least 2,700 men. Megiddo was a major city and located in a strategic position, so their military may have been significantly larger than sites of similar size that were less important. However, the text still demonstrates that some of the major cities of Canaan would have had a sizeable army in addition to the normal population. According to one estimate based upon Ugaritic texts, the entire military force at Ugarit in the Late Bronze Age was at least 2,000 or more men (Drews 1993: 148).³³ One type of foot soldier referred to as the *mdrglm*-guards may have accounted for over 1,000 of the total troops—suggesting that with a chariot core and archers the entire military force was significantly more than 2,000 (Drews 1993: 148). The size of the garrisons mentioned in the Amarna Letters and in Egyptian military texts is primarily useful for calculating total population of cities by adding a garrison to the residential population, plus the small administrative and

³³ Although there is evidence of limited conscription from villages outside the city, it was apparently played a very marginal role. Though the military force at Ugarit may not directly correlate to the population of the city, it suggests a total population over 10,000 as plausible.

religious population. Additionally, an inference from the data about military forces can be made that relatively large populations, in the thousands and even ten thousands rather than in the hundreds, existed in the major cities of Canaan.

By utilizing the family data with house data, a total population for the residential districts of a site can be estimated. As the residential districts of settlements contained the bulk of the population but did not encompass the entire site area, proper calculation of the population structure of these areas are essential for estimating the total settlement population.³⁴ The garrison data suggests that although not a significantly large percentage of the overall population, troops resided in certain cities and should be factored into a total settlement estimate.³⁵

4.5 PRIESTS AND TEMPLE “HOUSEHOLD” POPULATION

The idea that priests resided in their temples was discussed previously (cf. Chapter 3). This was based primarily on a text mentioning animal sacrifice occurring at the house of the priest, and because priests were responsible for maintaining the temple and performing a variety of duties there (Pardee and Lewis 2002: 52). It is suggested that small temples may have only required one priest or priestess and perhaps some servants, while the larger temples may have required multiple priests or priestesses and many servants. Therefore, while a temple “household” population would not have been equal to that of a normal residence, it is likely that there were a few residents—perhaps up to 5 in the large temples.

4.6 CONCLUSION

With the addition of estimates for the ruling families and their slaves, priests living in temples, and the military garrison, a total population estimate can be made for each

³⁴ It appears that nearly the entire population lived in the residential districts, while the administrative and religious districts were very sparsely populated. Thus, applying a population density coefficient to an entire site area would result in a more inaccurate population estimate, especially if the residential, administrative, and religious districts varied in size and structure.

³⁵ For the larger sites, this population increase may be almost negligible. For example, a garrison of 100 troops in a city with a population of approximately 10,000 residents would only account for 1% of the total. In some situations, local residents may have formed the militia and would not account for an addition to the population. However, in other cases an additional garrison of 400 troops in a city with a population of approximately 3,000 is a statistically significant increase.

site during the Late Bronze Age. These additions will be used for appropriate settlements that had royal residences, temples, and indications or evidence of a garrison.

CHAPTER 5

LIFE EXPECTANCY AND SEX RATIO IN LATE BRONZE AGE CANAAN

5.1 INTRODUCTION TO LIFE EXPECTANCY AND SEX RATIO FOR CANAAN

Two other major demographic aspects of Late Bronze Age Canaan that have an impact on understanding and estimating the population which can also be investigated and estimated through archaeological data are life expectancy and sex ratio, while a few observations about possible infant mortality rates can also be made. These two demographic factors are dependent upon the excavation and analysis of human skeletal remains from burials within a Late Bronze Age context. Due to a variety of factors, such as the lack of excavation of large cemeteries from the Late Bronze Age in the region, poor skeletal preservation, the ignoring of anthropological information, meager analysis of human remains, and contemporary cultural issues that may hamper excavation and analysis of ancient human remains, the sample size is smaller than might be expected from the number of Late Bronze Age sites in Canaan. Additionally, it is understood that burials from Late Bronze Age Canaan may not necessarily represent the entire living population with complete accuracy due to factors such as preservation and burial practices which may have resulted from distinctions based on wealth or class. However, use of the Late Bronze Age burial data is the best and most accurate method for estimating life expectancy and sex ratio for Canaan during the period.³⁶ This not only gives further demographic insight into the region and period, but the sex ratio compiled from burials is an important factor in substantiating the suggestion that families in Late Bronze Age Canaan had, on average, approximately the same number of sons and daughters. Additionally, when combined with information from ancient textual sources and compared to both ancient data from other regions and modern demographic data, estimates and useful trends may be presented with reasonable accuracy. Thus, using all available burial data from Late Bronze Age Canaan, averages have been calculated and trends highlighted in order to present typical life expectancy and sex ratio for the population, specific to the region and period.

³⁶ See the summary data for the sex ratio in Late Bronze Age Canaan, and the tendency for human populations to be approximately 1:1 male/female.

5.2 LIFE EXPECTANCY AND SEX RATIO METHODOLOGY

The primary method in this study for acquiring information about ancient life expectancy and sex ratio is through data from the analysis of physical remains recovered in excavated cemeteries and burials. This can be supplemented by relevant epigraphic data from the period and comparative studies in human demography from low technology societies. An example of burial data analysis at an ancient site comes from the Naga-ed-Der project, which gives a “profile of the population, its age and sex distribution, and the physical condition of the people as reflected by such statistics and the pathological conditions noted among the deceased,” carried out through the examination of human remains in an excavated cemetery (Podzorski 1990: 14). This particular cemetery data was dated to the Pre-Dynastic period, but studies of the same type have also been done on other periods that serve as a model and are useful in comparative analysis. This type of examination allows the discovery of information related to sex ratio and age of death, in addition to information about causes of death and health of the population if the skeletal preservation is sufficient. Skeletal age estimates are based on tooth eruption and age, stage of epiphyseal union, condition of pubic symphysis, vertebral deterioration, condition of joint surfaces, cortical thinning of the diaphyses of long bones, and cranial sutures (Hillson 1996: 176-201; Podzorski 1990: 15; Johnston and Zimmer 1989: 11-22; Walker and Johnson 1988:183-188; Bass 2005). To determine sex, pelvic bones are examined, specifically the architecture of the pelvic basin and pubis, the subpubic angle, width of the sciatic notch and acetabulum, the condition of subauricular grooves, the common femoral head diameter, mandibular angle, and cranial morphology (Podzorski 1990: 16; Walker and Johnson 1988: 183-188; Bass 2005).³⁷ In order to determine pathological conditions, radiographic analysis and other methods can be used. Although this additional information acquired from skeletal analysis allows for a better understanding of the population, unfortunately the human skeletal remains from Late Bronze Age Canaan are typically only sufficient to determine age at death and sex, and in many cases even that is not possible. Thus, data from the analysis of skeletal remains by various physical anthropologists will be

³⁷ It should be noted that identifying the sex of a skeleton prior to adolescence is questionable, and may not produce accurate results. Thus, most skeletal remains for which the sex of the individual is reliably established are of adolescent age or older.

used to demonstrate sample figures for life expectancy and sex ratio in Canaan during the Late Bronze Age. It is recognized that uncovered cemeteries and burials represent only a small percentage of the population. However, this data will be treated as a representative random sampling of the population. The results should give insight into life expectancy and sex ratio for the Late Bronze Age Canaan based on period and region specific data, rather than ethnographic parallel or theory.

5.3 RELEVANT COMPARATIVE STUDIES FROM THE ANCIENT WORLD

Demographic studies dealing with life expectancy and sex ratio based on analysis of skeletal data from burials has been conducted in other areas of the ancient world, and serves as useful comparative data for assessing the reliability of conclusions from the Late Bronze Age Canaan data. Studies from ancient Egypt, the Bronze Age Aegean, and Late Bronze and Iron Age Luristan all suggest similar life expectancies and sex ratios for the ancient Near East and Eastern Mediterranean.

When dealing with the aspect of life expectancy, Baines and Eyre propose an average age-span of Egyptian tomb-builders of 30 to 45 years—an age span past the average life expectancy in Egypt at that time according to the available data—but it also appears that the nobility usually enjoyed a longer lifespan than the average citizen (Baines and Eyre 1983: 66, 73). Although this is a debatable hypothesis, it seems logical that the nobility, having a less strenuous life, better medical care, and a consistent food supply (excepting times of famine) would have a higher probability to be healthier and thus enjoy a longer life than the peasant or slave population. This concept may be applicable to Late Bronze Canaan and the division between class roles such as rulers, priests, scribes, and perhaps some artisans, and the classes which required more physical exertion and exposure to danger and disease, such as agricultural workers, soldiers, traveling merchants, and nomads. The quality and amount of burial goods may be an indicating factor in distinguishing between upper and lower classes in Canaan. In future excavation and analysis, this may be a methodology and perspective that would allow for more complete and detailed information about possible differences in the life expectancy of classes in Canaan for burials that had not been reused or robbed.

From the cemetery data in the Naga-ed-Der project, a compilation of burial data was assembled into a table giving insight into lifespan and sex. Concerning lifespan, the great majority of skeletal remains were estimated to be 20 years of age or less. 182 of the skeletons were estimated to be 20 years of age or younger, while only 83 were 20 years of age or greater. In total, there were 55 males, 64 females, and 146 of undetermined sex. Only using the skeletons with known age figures, the data shows 69% of the population dying by or before the age of 20, while only 31% lived through adulthood with a lifespan of 31.3 years. The sex ratio shows an approximate 46% male, 54% female division if the undetermined individuals are not taken into account. However, this sample data only takes into account 23% (853 total) of the excavated burials, so it could be misleading if the undetermined skeletal remains did not coincide with those that were determinable (Podzorski 1990: 72-77). Thus, for a more accurate assessment it is best to compare the ages and sexes in the burials recovered to other cemeteries to check for similar statistics and trends. By doing so and comparing with other, similar studies, the cemetery data appears to be consistent within a particular region and general time period, as the demographic data from the Naga-ed-Der cemetery is comparable to the Dynastic Egyptian data from Gebelein and Assiut (Podzorski 1990: 78-79). The implications of this parallel for Canaan suggest that burial data from multiple areas in Canaan should be representative of the entire region. Thus, even if skeletal data for age at death and sex is only available from a limited number of sites within Late Bronze Age Canaan, the data should be representative of the entire region during the period.

Juan Castillos compiled a large amount of Early Dynastic Egyptian cemetery data, totaling 6,916 Pre-Dynastic and Early Dynastic tombs (Castillos 1982: 173). In his study he shows that 90% (1586/1733) of the Early Dynastic burials are of adult age, compared with the 66% (477/723) in the Pre-Dynastic period, while sex ratio showed 517/991 for 52% males and 474/991 for 48% females in Early Dynastic cemeteries (Castillos 1982: tables 5-6). Perhaps the life expectancy rate had risen in Dynastic times, or perhaps children were simply buried less often during this period. Most importantly, this demonstrates the need to focus only on burials from a specific time period, since changing cultural practices and environmental conditions between periods

could skew the results. Thus, for Canaan, only burials from the Late Bronze Age will be accounted for, although data from the Middle Bronze Age may be consulted due to the close similarity in material culture and technology.

In the Early Dynastic cemetery at Tarkhan, excavated and recorded by Petrie, 357 women and 309 men were identified out of a total of approximately 2000 tombs (Tarkhan Tomb Groups, <http://www.digitalegypt.ucl.ac.uk/tarkhan/downloads.html>). The distribution turns out to 54% female, 46% male in this case.³⁸ The Early Dynastic sex ratio data is close to the Pre-Dynastic numbers, and when compared with a study of Roman Egypt census data from the beginning of the first century CE, the numbers, showing about 50% for both male and female out of 1022 of identifiable sex, are also quite similar (Bagnall and Frier 1994: 93).³⁹ Although from different time periods, it is important to note the apparent consistency in sex ratio from the Pre-Dynastic period all the way through the Roman Period, suggesting a common sex ratio for all ancient, historic societies of the ancient Near East.

From the Second Intermediate Period at Tell el-Dab'a, 257 skeletons were analyzed and the age of death determined. These burials are closer in chronology and proximity to Late Bronze Canaan, and much of the population at Tell el-Dab'a was composed of Asiatics from Canaan. The results displayed 42% of the people had died between the ages of 19 and 40, with the average age for an adult male at about 34 years, and for an adult female at about 30 years (Wilfing and Winkler 1991: 140). From a New Kingdom cemetery at Saqqara, 54% of the population whose age at death was able to be determined died between the ages of 18 and 45, with the highest percentage of any group coming in at 22% for the 36 to 45 range (Sowada, Callaghan, and Bentley 1999: 94). The New Kingdom period coincides with the Late Bronze Age and may be one of the closer correlations to Late Bronze Canaan. Thus, the data from Tell el-Dab'a and Saqqara may be a general indicator of what burial data from Late Bronze Canaan will suggest for life expectancy numbers—that typical adult life expectancy, at least for the elite who were more likely to be buried formally in Egypt, could fall somewhere

³⁸ The skew in favor of females in the burials could be due to burial practices, skeletal preservation, or the death of males outside of their communities, resulting in a higher percentage of the females in a particular population being buried.

³⁹ Combined sex ratio of 0.98:1 male/female for ancient Egypt, compared to approximately 1:1 male/female for classical period Egypt.

between 30 and 45 years. It could be hypothesized that Egypt did not undergo much change in life expectancy and sex ratio throughout the entire Pharaonic period because of the limited advances in technology impacting health, regular conflict, and the relative isolation of the empire; the above data appears to support that hypothesis. Canaan, on the other hand, was not isolated but a crossroads and buffer zone, and it underwent much change between periods, necessitating a focus on data from the Late Bronze Age alone with the possibility of supplemental burial data from the Middle Bronze Age because of the similarity in material culture.

Comparative data from the Bronze Age Aegean also provides useful insight for understanding and confirming the estimates from Canaan.⁴⁰ The juvenile mortality rate in the Bronze Age Aegean was calculated at around 50% in some contexts (Halstead 1977: 107). The Aegean data also suggests that few people did not live long past the age of 30, and this could have easily been cut shorter by warfare for the men and health complications due to pregnancy for women (Halstead 1977: 108). In the best preserved burial grounds, the sex ratio from the Bronze Age Aegean is also comparable to both ancient and modern studies, at approximately 1:1 male to female (Halstead 1977: 108). However, just as in other regions of the Bronze Age world, burial data from the Aegean demonstrates that some members of the population did reach ages up to or even surpassing 70 years (Halstead 1977: Figures 1-10).

A study conducted on burials from Luristan during the Late Bronze and Iron Ages analyzed skeletal remains to determine age at death and sex. From 42 individuals, 27 were identified as male or female. The resulting sex ratio was 0.93:1 males to females (Riesle and Dastugue 1983: Table 2). The life expectancy after birth was calculated to be 29 years, but for those who lived into adulthood, life expectancy was calculated slightly higher at approximately 31 years of age (Riesle and Dastugue 1983: 192).⁴¹ Surprisingly, infant and child mortality rates were considerably lower, but this appears to have been a reflection of not typically burying deceased babies or infants in the tombs or differences in the survivorship of juvenile skeletons (Riesle and Dastugue 1983: Table 4; 212-213). Other burial data from Bronze and Iron Age Luristan found similar

⁴⁰ Most of the data from the Aegean presented here comes from Middle and Late Bronze Age contexts, and thus shares a general chronological sphere with Late Bronze Age Canaan.

⁴¹ The slight difference between 29 years from birth and 31 years for adults could also be due to statistical noise.

results, with life expectancy from birth figures of approximately 24 and 34, and life expectancy for those who lived into adulthood of approximately 29 and 36 for Hasanlu IV and Sialk (Riesle and Dastugue 1983: 193). A very small percentage of the overall population for the three analyzed sites in Luristan, between 2% and 5%, lived to the age of 60 or more (Riesle and Dastugue 1983: 192-193). Thus, life expectancies of around 30 years and an approximately equal sex ratio are attested in this region.

Life expectancies for the four ancient regions appear to share a similar scope, demonstrating the plausibility and expectation of normal life expectancy around 30 years of age. The data also suggests that sex ratios may have been approximately the same throughout the historical periods of the ancient Eastern Mediterranean, and one may expect a general ratio close to 1:1, like that found in ancient Egypt, the Bronze Age Aegean, and Luristan, for Late Bronze Age Canaan. Although only the methodology used for life expectancy and sex ratio studies for other ancient regions is directly relevant, the comparative data is useful for understanding the wider demographic context of the ancient Near East and Eastern Mediterranean, of which Canaan was a part. This comparative data helps establish that typical life expectancies were relatively low in the ancient Near East and that the sex ratio was near 1:1. Thus, figures close to these may be expected for Canaan during the Late Bronze Age. With a large enough sample size, the overall results from burial data should be indicative of the general life expectancy and sex ratio for the region of Canaan in the Late Bronze Age.

5.4 DIFFICULTIES IN ANALYZING AND OBTAINING BURIAL DATA

From the modern countries which the territory of ancient Canaan is part of, excavation and analysis of human skeletal remains, and the reporting, publication, and access to that data is fraught with many difficulties. Political and cultural issues sometimes make the anthropological analysis of ancient human skeletal remains or even the excavation of the remains in Israel impossible (Marquez-Grant and Fibiger 2011: 614, 618). This translates to a low number of excavated burials, and an even lower number of human skeletal remains which are studied sufficiently to yield estimates of age at death and sex. Thus, the dataset is extremely limited in this particular region. In the Palestinian territories of the West Bank and Gaza, limited

archaeological projects have been carried out in recent decades, and only a minute percentage dealt with Late Bronze Age burials. As analysis of human skeletal remains is often not a priority, there is almost a complete absence of anthropological burial data relating to the Late Bronze Age from this area. In southwestern Syria, few archaeological excavations have been undertaken, and a very small portion of this is Late Bronze Age material. The political instability of Syria in recent years has led to a virtual hiatus of archaeological work in the country. In Lebanon, several important archaeological excavations have been carried out, but most of these did not focus on the analysis of human skeletal remains or demographic factors in the Bronze Age. Additionally, political strife in the country has negatively impacted new or continuing archaeological research. In Jordan, archaeology has seen a prolific rise in the amount of surveys, excavations, and the details addressed in the archaeological research. Late Bronze Age burials from Jordan have the potential to yield extremely useful information if the data is available.

5.5 LIFE EXPECTANCY AND SEX RATIO DATA FROM CANAAN

All available Late Bronze Age burial data for human skeletal remains was compiled and examined for the region of Canaan in order to calculate averages and deduce estimates for the population concerning both life expectancy and sex ratio.⁴² The data presented below is divided up into separate burials, tombs, and cemeteries from the region. Following the separate divisions, the collective data is presented as representative of Late Bronze Age Canaan. It is recognized that margins of error exist when dealing with data of this nature. However, with a large enough dataset the conclusions should give a reasonably accurate representation of these demographic factors.

5.5.1 Azor

At the Azor cemetery, a total of 21 individuals from approximately the time of the Late Bronze Age yielded age at death estimates, while the sex of only one individual

⁴² Ranges for age at death were converted into a number representing the approximate midpoint of the range in order to present the data as individual and collective averages for age at death and life expectancy. The figures are not meant to be taken as exact to the year, but should be understood typically as a +/- of 1 to 5 years.

was identifiable (Nagar 2012: Chapter 11). The sex of the one identifiable individual was a female of approximately 50 years of age, indicating that females in Late Bronze Age Canaan occasionally had long lifespans.

The ages at death were as follows, with ranges for individuals converted into an average for the purpose of calculating overall averages for the site: 6, 50, 13, 15, 30, 15, 40, 25, 1, 14, 1, 30, 16, 2, 4, 7, 12, 21, 35, 20, 50. This equates to an approximate average of 19-20 years life expectancy from birth.⁴³ For individuals surviving to age 10, there was a life expectancy average of approximately 25-26 years.⁴⁴ Both of these averages are slightly lower than typical sets of burial data from Late Bronze Age Canaan. The oldest individuals in this set of data lived to approximately 50 years old or more, representing approximately 10% of the burials. The infant mortality rate represented by the burials was approximately 15%. This particular dataset indicates an extremely wide variance in life expectancy.

Skeletal analysis indicates 1 female, while the other individuals were of unknown sex. The only contributions that this data from Azor contributes is the knowledge that females were buried, and one female to add to the overall dataset for Late Bronze Age Canaan.

Table 5.1: Azor

| | |
|--------------|---|
| Age at Death | 19.4 years (average for 21 individuals) |
| Sex | 0 male(s), 1 female(s) |

5.5.2 Arra

Examination of burials at Arra revealed two tombs that were reused in the Bronze Age, with the last period of use dating to the Late Bronze Age (Nagar and Lev-Tov 2013).⁴⁵ This suggests that the bulk of the human remains, if not all, belong to the Late Bronze Age, assuming earlier burials or at least the entombed individuals were removed from the grave when successive burials were done. Human remains from other periods, if present, likely belonged to the Middle Bronze Age, which was similar to the Late Bronze Age and should not significantly skew the results.

⁴³ Based on 407 total years divided by 21 individuals.

⁴⁴ Based on 386 total years divided by 15 individuals.

⁴⁵ Unpublished manuscript, forthcoming.

Based on 102 identifiable individuals, the life expectancy was calculated to be about 22 at birth, while the average life expectancy increased to 29 if the individuals lived to the age of 10 (Nagar and Lev-Tov 2013: 2). 6 individuals lived to over 60 years old, exhibiting the possibility of long life in Canaan during the Late Bronze Age for perhaps 3% of the population (Nagar and Lev-Tov: Table 1). Approximately 17% of individuals represented in burials died before the age of 10, demonstrating the prevalence of childhood death in Bronze Age Canaan, although other burial groups from the region have even higher infant and child mortality rates (Nagar and Lev-Tov: Table 1). While there was an assumed infant mortality rate of approximate 40%, this was not represented in the data, nor is this figure typical of other Late Bronze Age burials in Canaan (Nagar and Lev-Tov 2013: 2). Approximately 20% of the population died at about the age of 30 (Nagar and Lev-Tov: Figure 1). The mean adult age at death, which may be a better indicator of adult life expectancy, was 35 years (Nagar and Lev-Tov: Table 4).

Of identifiable sex, 11 males and 10 females were represented in the population (Nagar and Lev-Tov: Table 1). Extrapolated, this suggests a hypothetical 1.1:1 male to female sex ratio for the area.

Table 5.2: Arra

| | |
|--------------|--|
| Age at Death | 22 years (average for 102 individuals) |
| Sex | 11 male(s), 10 female(s) |

5.5.3 Afeq

At Afeq, a cave which was reused for burial during Late Bronze Age II contained human skeletal remains, five of which were identifiable in age (Shalem 2008: 96). The human remains likely dated to the Late Bronze Age II, but the possibility is noted that the remains may date slightly earlier (Shalem 2008: 113).

The average age at death for the identifiable individuals was as follows: 1, 9, 18, 25, 35 (Shalem 2008: 96). The average life expectancy from birth derived from this data equates to approximately 17-18 years. Life expectancy for individuals living to age 10 or more equates to approximately 26 years. The small sampling from these burials exhibit

a wide range of death ages, an infant mortality rate of 20%, and an adult life expectancy between 18 and 35 years of age. Otherwise, the main contribution is the addition of data to the overall dataset for Late Bronze Age Canaan.

Unfortunately, no data identifying the sex of the individuals from the Late Bronze Age human skeletal remains at Afeq was available.

Table 5.3: Afeq

| | |
|--------------|--|
| Age at Death | 17.6 years (average for 5 individuals) |
| Sex | 0 male(s), 0 female(s) |

5.5.4 West of Tell Qasile

At a burial site west of Tell Qasile, human skeletal remains dated to the latter half of the Middle Bronze Age were uncovered. The life expectancy and sex ratio of these burials may be representative of Late Bronze Age I. At least 26 individuals were represented in the burials from this site (Nagar 2006a: 133).

Average age at death figures for the burials were as follows : 8, 1, 15, 15, 15, 15, 6, 3, 15, 10, 6, 8, 18, 15, 30, 40, 18, 60, 40, 19, 19, 15, 15, 15, 15, 15 (Nagar 2006a: Table 1). Only one infant burial was represented, suggesting the possibility that most infants were not buried in this particular cemetery, but instead under the floors of houses or even discarded. The average life expectancy from birth for this set of burials is approximately 17-18 years.⁴⁶ For those individuals that lived to age 10, life the average life expectancy was approximately 21 years .⁴⁷ The bulk of the population found in these burials appears to have died during their teenage years. However, 11.5% of the population lived to age 40 or more, and one individual lived to approximately age 60, demonstrating again the possibility of a long lifespan during this period.

Human osteological remains of identifiable sex included 3 males and 2 females (Nagar 2006a: Table 1). The sample size is too small to make any other inferences besides the presence of female burials and data for the overall dataset.

⁴⁶ Based on 451 total years divided by 26 individuals.

⁴⁷ Based on 419 total years divided by 20 individuals.

Table 5.4: West of Qasile

| | |
|--------------|---|
| Age at Death | 17.4 years (average for 26 individuals) |
| Sex | 3 male(s), 2 female(s) |

5.5.5 Horbat Zelef Burial Cave

In a burial cave at Horbat Zelef, at least 27 individuals found in the Late Bronze Age burials were examined for age at death based on analysis of tooth attrition (Nagar 2011: 65). Osteological data was limited, but life expectancy at birth was calculated at an average of 25 years, while those living to 10 years had a much higher total life expectancy of 37 years (Nagar 2011: 66).⁴⁸ The average age at death numbers, which is typical for Canaan of the Late Bronze Age, are somewhat skewed because of the high percentage of death for young children, but for those living past early childhood an average lifespan for this burial population was a relatively high 37 years. As with other groups of burial data, there was still a wide variance of age at death with a small percentage of the population, about 4%, living 60 years or more, while nearly 40% of the burials were aged 10 or less (Nagar 2011: Figure 1). The bulk of the non-child population, 35% of the total, died between the ages of 20 and 50. The age at death data indicates a high mortality rate during childhood, but the possibility of a long lifespan of 60 years or more.

An overall average age at death of 25 years for 27 individuals was calculated from the analysis of the skeletal remains.

Sex of the individuals based on skeletal analysis was not able to be determined due to the condition of the remains.

Table 5.5: Horbat Zelef

| | |
|--------------|---------------------------------------|
| Age at Death | 25 years (average for 27 individuals) |
| Sex | 0 male(s), 0 female(s) |

5.5.6 Gezer

A total of 88 individuals from Late Bronze Age burials at Gezer that were analyzed yielded an approximate life expectancy from birth of 27.5 years (Finkel 1988:

⁴⁸ Based on 675 total years divided by 27 individuals for age at death calculated from birth.

130). This average falls within the range of other life expectancy at birth figures obtained from burial data in Late Bronze Age Canaan. Only two individuals, representing just over 2% of the population, appear to have reached the age of 55 or more (Finkel 1988: 130). Infant and child mortality at the site also appears to have been high, with approximate 35% of the skeletal remains from individuals under 12 years of age (Finkel 1988: 131).

The Late Bronze Age burials from Gezer exhibit an average age at death of 27.5 years for 88 individuals.

The sex ratio derived from 37 identifiable individuals at Gezer was slightly uneven, at 0.85:1 males to females, based on 17 identifiable males and 20 identifiable females (Finkel 1988: 130).⁴⁹ This sex ratio slightly skewed in favor of females may have been due to the poor preservation of some of the skeletal remains, situations in which the deceased males were not able to be recovered and buried, or possibly a slightly higher percentage of females in the city.

Table 5.6: Gezer

| | |
|--------------|---|
| Age at Death | 27.5 years (average for 88 individuals) |
| Sex | 17 male(s), 20 female(s) |

5.5.7 Tel Dan

Late Bronze Age Tomb 387 at Tel Dan yielded skeletal remains from at least 30 individuals (Arensburg 2002: 209).⁵⁰ While most of the skeletal remains exhibited an age at death in the 19-60 year old range, one individual accounting for approximately 3% of the population was estimated at over 60 years of age (Arensburg 2002: 214). This possibility of long life, although very atypical, demonstrates that the average lifespan in Late Bronze Age Canaan was drastically less than the age reached by the oldest of the population—approximately 30 to 40 years of difference according to the skeletal data. At the Dan tomb, the remains indicate a child mortality rate of only 10%,

⁴⁹ Only 37 out of the 57 adult individuals were able to be identified for sex.

⁵⁰ Biran 1994 contains different data than Arensburg 2002. The data from the more recent publication is used here.

which suggests that infants and very young children were buried elsewhere.⁵¹ From the examined skeletal remains, general age estimates were able to be determined for several individuals.

For age at death identifications, 3 children⁵² (of unspecified age), 4 adolescents of an average age of 15 years, 11 young adults of an average age of 27 years, 9 adults of an average age of 48 years, and 1 elderly human of over 60 years of age were determined (Arensburg 2002: Table 2.15).⁵³

In the analysis, 19 males and 4 females were identified, while 7 were of undetermined sex (Arensburg 2002: 214).⁵⁴ The large skew towards males in this particular tomb may have been due to an issue of status within the society, or simply within this particular tomb.

Table 5.7: Tel Dan

| | |
|--------------|---|
| Age at Death | 30.4 years (average for 28 individuals) |
| Sex | 19 male(s), 4 female(s) |

5.5.8 Tell es-Sa'idiyeh

The burials at Tell es-Sa'idiyeh are believed to be representative of the entire population, except for perhaps some additional baby or infant burials (Leach and Rega 1996: 138). The majority of the burials in Area BB and Area DD are from the Late Bronze Age, with some from the Persian Period (Tubb et al 1996: 16, 21).⁵⁵ Two graves found during a later season, 496 and 502, appeared to be even later than the Persian Period—perhaps Crusader period burials (Tubb et al 1997: 66). According to the excavators, Persian Period burials at the site are identical in every way to the Late Bronze Age burials except when distinguished by chronologically determining finds

⁵¹ Intramural burials of infants and young children during the Middle and Late Bronze Age at some sites could mean it is possible that the tomb at Tel Dan did not account for a proportional amount of children.

⁵² For the purposes of calculating an age at death average for the Dan burials, these children will be considered an average of 1 year of age.

⁵³ This calculates to 852 total years from estimates for 28 individuals.

⁵⁴ Even if the 7 individuals of unidentified sex were females, a 19 males to 11 females representation would still be noticeably different than averages derived from Late Bronze Age Canaan.

⁵⁵ Area BB burials were almost exclusively from the Late Bronze Age, while Area DD contained more burials from the Persian Period.

(Tubb et al 1996: 22). Because of this, burials from Area DD should be excluded except when specifically known to be from the Late Bronze Age. According to the skeletal report, 19 individuals, comprised of 14 adults and 5 children were identified in Area BB (Leach and Rega 1996: 131). The adult to child ratio from earlier excavations at Tell es-Sa'diyeh by Pritchard was 15 adults and 13 children for the Late Bronze Age burials, which brings the overall ratio at the site to 29 adults and 18 children for burials at the site (Pritchard 1980: 28-29; Table 2). Although the age information given is not specific enough and only allows general trends of life expectancy to be seen, it is apparent that approximately 60% or more of the population survived into adulthood. According to osteological analysis of burials in Area BB, 7 of the burials were of juvenile age or younger, while 12 of the burials were of young adult age or older, suggesting a 37% mortality rate prior to adulthood (Leach and Rega 1996: Figure 1).⁵⁶ 3 individuals are defined as "old adult," demonstrating that a small percentage of the population had a much longer lifespan (Leach and Rega 1996: Figure 1). According to the statistical analysis, about 63% of the population of the Late Bronze Age burials at Sa'diyeh survived to over the age of 25, while about 37% survived to approximately age 35 (Leach and Rega 1996: Figure 2). These trends are in general agreement with other burial data from Late Bronze Age Canaan and serve to reinforce the estimated life expectancy figures.⁵⁷

Only 4 individuals from the known Late Bronze Age burials were assigned sex identification as male or female. 3 adult females and 1 adult male were represented (Leach and Rega 1996: Table 1).

Table 5.8: Tell es-Sa'diyeh

| | |
|--------------|-----------------------------|
| Age at Death | Unspecific. 63% over age 25 |
| Sex | 1 male(s), 3 female(s) |

5.5.9 Deir el-Balah

At the site of Deir el-Balah, impressive burials from the Late Bronze Age were discovered, housed in anthropoid coffins (Arensburg and Smith 1979: 1). Three coffins

⁵⁶ 2 baby, 2 infant, 2 child, 2 juvenile, 5 young adult, 4 adult, 3 old adult (Leach and Rega 1996: Figure 1)

⁵⁷ The Tell es-Sa'diyeh material is currently being prepared for final publication, at which point more specifics about the age at death of individuals from the burials may be available.

from the Late Bronze Age were excavated, and the human skeletal remains inside were analyzed for both age at death and sex.

Coffin 114 contained remains of humans with average approximate ages of 4, 22, 45, and 25 (Arensburg and Smith 1979: 92-93). The remains from Coffin 116 included only one human of definable age, at approximately 13, while the other two individuals were considered old adults (Arensburg and Smith 1979: 92-93). In Coffin 118, the average approximate ages of the two individuals were 28 and 38 (Arensburg and Smith 1979: 94). This equates to an average age at death of 25 years old, and an average life expectancy for those living past age 10 of 28.5 years total from the Deir el-Balah burials. It should be recognized, however, that the remains of two of the old adults were not assigned specific ages or age ranges. Thus, these individuals would have likely raised the life expectancy average for the site. Although estimated ages were not given for the old adults, these were probably individuals of at least 40 years old, but likely exceeding 50 or even 60 years of age, which occasionally occurred in Canaan during the Late Bronze Age. Infants do not appear to be represented in these coffin burials, and may have been buried elsewhere. Age at death averages for the identifiable individuals are: 4, 22, 45, 25, 13, 40, 40, 28, 38.⁵⁸

The sex of only four of the individuals was able to be definitively identified. The remains certainly included 2 males and 2 females, although it appears an additional female may have been present (Arensburg and Smith 1979: 92-94).⁵⁹

Table 5.9: Deir el-Balah

| | |
|--------------|--|
| Age at Death | 28.3 years (average for 9 individuals) |
| Sex | 2 male(s), 2 female(s) |

5.5.10 Megiddo

From Megiddo tombs of the Late Bronze Age, 12 individuals had skeletal remains that allowed determination of general age at death and sex (Hrdlicka 1938: 192). Age at death was described using words rather than numerical ranges. 6 individuals were described as “Young adult,” 4 were described as “Near middle age,” 1

⁵⁸ Using the estimated age of 40 years for the two “old adults,” although they may have been significantly older.

⁵⁹ This possible additional female is included in the final results.

as “Middle aged,” and 1 as “Late middle age” (Hrdlicka 1938: Table VI). Since no criteria were given to correlate these descriptors with numerical age ranges, estimations for age at death from the earlier excavated Megiddo tombs cannot be factored into the overall total for Canaan. However, from later examination of Late Bronze Age burials excavated at Megiddo, age at death was determined, but not sex. Thus, the two sets of burials combined give information for both age at death and sex at Megiddo in the Late Bronze Age.

The average age at death for identifiable individuals at Megiddo was as follows: 0.5 years old, 25 years old, 18 years old, 50 years old, 4 years old, 35 years old, 45 years old, 60 years old, 2 years old, 3 years old, 2 years old, 15 years old (Nagar 2006b: Table 22.1). This equates to an average life expectancy from birth of approximately 21-22 years old.⁶⁰

The sex of 12 individuals from the Late Bronze Age tombs at Megiddo was able to be identified after analysis of skeletal remains. Of discernible sex, there were 4 males and 8 females (Hrdlicka 1932: Table VI).

Table 5.10: Megiddo

| | |
|--------------|---|
| Age at Death | 21.6 years (average for 12 individuals) |
| Sex | 4 male(s), 8 female(s) |

5.5.11 Jaffa

Two tombs designated Tomb 111 and Tomb 144 dating from the Late Bronze Age were uncovered at ancient Jaffa (Peilstocker 2011: 183-184).

Specific age at death data from Jaffa was only acquired for two individuals. Tomb 111 contained one identifiable person of approximately 50 years old (Peilstocker 2011: 183). Tomb 144 contained remains of an adult of undefined age and a child of approximately 3 years of age (Peilstocker 2011: 184).

The sex of only two individuals from the burials was able to be determined. Tomb 111 contained one female, while Tomb 144 also contained one female (Peilstocker 2011: 183-184).

⁶⁰ 259.5 total years from 12 individuals.

Table 5.11: Jaffa

| | |
|--------------|--|
| Age at Death | 26.5 years (average for 2 individuals) |
| Sex | 0 male(s), 2 female(s) |

5.5.12 Akko

At the site of the Persian Garden near Akko, human skeletal remains were discovered in multiple Late Bronze Age tombs (Arensburg 1977: 81).

The age at death data for most of the individuals was unspecific, only defining by general terms rather than age ranges. The data from the Late Bronze Age tombs is as follows: young adult male, 20 year old female, young adult male, female, adult female, adult male, infant, adult male. Because all but one of the age at death descriptions are general, only the 20 year old age estimate for the one individual will be used in the final dataset. However, the evaluations suggest that most of the burials were of adult age, with only one, or 14%, being infant burials.

The sex of 7 individuals, 4 males and 3 females, was able to be determined based on skeletal analysis (Arensburg 1977: 81).

Table 5.12: Akko

| | |
|--------------|-------------------------------------|
| Age at Death | 20 years (average for 1 individual) |
| Sex | 4 male(s), 3 female(s) |

5.5.13 Tel Batash

Tel Batash had only one skeleton recovered from a Late Bronze Age burial that was analyzed for age and sex.

The age at death for this individual was estimated at approximately 23 years old (Arensburg 2006: 313).

The sex of the Tel Batash Late Bronze Age burial was determined to be male (Arensburg 2006: 313).

Table 5.13: Tel Batash

| | |
|--------------|-------------------------------------|
| Age at Death | 23 years (average for 1 individual) |
| Sex | 1 male(s), 0 female(s) |

5.5.14 Baqah Valley Caves. Khirbet Umm ad-Dananir Region

The Jebel al-Hawayah and Jebel al-Qesir Burial Caves contained many Late Bronze Age burials—Late Bronze Age I in Cave A2 and Late Bronze Age II in Cave B3 (Brown and McGovern 1986: 32, 44). The human skeletal remains in Cave A2 were very poorly preserved, and precise age at death determinations were claimed for only two children. However, the analysis was able to distinguish 9 adults, 7 sub-adults, 2 children (4 years old and 8 years old), and 4 infants, with 8 females and 1 male identified (Finnegan and Husted 1986: 295-297). This suggests an infant mortality rate of only 18% in Cave A2, and 24% for the entire site—much lower than is usually assumed for Late Bronze Age Canaan, but figures which appear consistent with other burial data. From Cave B3, more precise age at death figures were given, primarily using crania analysis, while sex was primarily determined based on humeri (Rolston 1986: 297-298, Table 37). For Cave B3, the life expectancy was calculated at 38 years if surviving past childhood (Rolston 1986: 303). This adult life expectancy is only slightly higher than that of the majority of burials in Late Bronze Age Canaan. However, because of the high amount of infant and child burials in the cemetery, the life expectancy from birth appears extremely low. Although no explanation for the high amount of burials for individuals prior to adulthood can be determined with any certainty, severe disease, excessively poor health of the population, child sacrifice, or a low adult burial rate are possibilities.

The identifiable age at death averages for all of the Late Bronze Age burials from the Baqah Valley Caves are as follows: 8 aged 1, 5 aged 2, 4 aged 3, 4 years old, 7 aged 5, 3 aged 7, 8 years old, 3 aged 9, 5 aged 11, 5 aged 15, 5 aged 21, 3 aged 27, 5 aged 32, 4 aged 37, 2 aged 42, 4 aged 47, and 1 aged 50+ (Rolston 1986: Figure 95).⁶¹

From both caves combined, sex was able to be determined for 39 individuals—25 females and 14 males (Rolston 1986: Figure 95). Although the sex ratio is skewed highly in favor of females from these two caves, the likely explanation is from poor preservation of skeletal remains rather than a much greater ratio of females at the site.

⁶¹ 1086 total years from 66 individuals.

Table 5.14: Baqah Valley Caves

| | |
|--------------|---|
| Age at Death | 16.5 years (average for 66 individuals) |
| Sex | 14 male(s), 25 female(s) |

5.5.15 Pella

At Pella, tombs used in both the end of the Middle Bronze Age and the beginning of the Late Bronze Age were uncovered. However, the burials probably represent the Late Bronze Age I population as tombs were typically cleaned out and reused, suggesting the skeletal remains in the tomb are from the Late Bronze Age; other tombs at the site were dated to Late Bronze Age I with certainty (Bourke 1992: 216). The skeletal analysis suggests an infant mortality rate of approximately 30%.

The approximate age at death for 29 identifiable individuals was as follows: 5 year old, 48 year old male, 43 year old female, 38 year old female, 12 average age of 30 years old, 3 average age of 15 years old, 4 average age of 4 years old, 48 years old, 12 years old, 15 years old, 3 average age of 5 years old (Bourke 1992: 216-217).

The sex of 21 individuals was able to be determined. A combination of the various analyzed burials from the Late Bronze Age at Pella identified 10 males and 11 females (Bourke 1992: 216-217).

Table 5.15: Pella

| | |
|--------------|---|
| Age at Death | 22.2 years (average for 29 individuals) |
| Sex | 10 male(s), 11 female(s) |

5.5.16 Ashkelon

Late Bronze Age I tombs were found under the courtyard of a house at Ashkelon, but skeletal remains from only two individuals were excavated and identified (Brody 2008: 515).

The approximate age at death for the two individuals was 24 years old and 3 years old, while the sex of only a single individual, a female, was identified (Dawson 2008: 531-532).

Table 5.16: Ashkelon

| | |
|--------------|--|
| Age at Death | 13.5 years (average for 2 individuals) |
| Sex | 0 male(s), 1 female(s) |

5.5.17 Sarepta

From the Late Bronze Age burials at Sarepta, three graves contained skeletal remains that were analyzed for age at death and sex.

The age at death from the remains of five individuals were assigned the approximate ages of 14 years old, 33 years old, 2 years old, 2 years old, and 0.5 years old (Anderson 1988: 370-371).

The sex of 3 individuals, 2 females and 1 male, were discernible from the skeletal remains (Anderson 1988: 370-371).

Table 5.17: Sarepta

| | |
|--------------|----------------------------------|
| Age at Death | 10.3 (average for 5 individuals) |
| Sex | 1 male(s), 2 female(s) |

5.5.18 Kamid el-Loz

The remains of three individuals were recovered from Late Bronze Age burials at Kamid el-Loz, ancient Kumidi.

The age at death was estimated for two individuals at 7 years old and 8 years old, while the sex of two individuals, 1 male and 1 female, was able to be determined based on skeletal analysis (Miron 1990: 164-166).⁶²

Table 5.18: Kamid el-Loz

| | |
|--------------|---------------------------------------|
| Age at Death | 7.5 years (average for 2 individuals) |
| Sex | 1 male(s), 1 female(s) |

5.5.19 Palmahim

The skeletal remains of one individual were excavated from a Late Bronze II burial at the site of Palmahim (Nagar 2013: 71). The age at death of the individual was

⁶² One adult male and one child female.

determined to be approximately 40 years old, but the sex was not discernible (Nagar 2013: 71).

Table 5.19: Palmahim

| | |
|--------------|-------------------------------------|
| Age at Death | 40 years (average for 1 individual) |
| Sex | 0 male(s), 0 female(s) |

5.5.20 Shaar Efrayim

In a Late Bronze Age tomb found at Shaar Efrayim, burials of a male averaged at approximately 30 years old and a child of unknown sex were uncovered (Van der Brink 2008).

Table 5.20: Shaar Efrayim

| | |
|--------------|-------------------------------------|
| Age at Death | 30 years (average for 1 individual) |
| Sex | 1 male(s), 0 female(s) |

5.6 ANCIENT TEXTUAL DATA RELATING TO LIFE EXPECTANCY

In addition to osteological analysis of burials from the Late Bronze Age which indicates a small percentage of individuals lived to the age of 60 or more, documents from the period also attest to certain prominent people that reached the age of 60 or beyond. Thutmose III lived to about age 60 (Cline and O'Connor 2006: 32). Ramesses II lived to at least age 90 (Kitchen 1982: 207). Merneptah lived to about age 70, and possibly a few years beyond (Kitchen 1982: 215-216). Ahmose, son of Ebana, a soldier in the Egyptian military who according to his autobiography served under Pharaohs Ahmose I, Amenhotep I, and Thutmose I, whose reigns spanned approximately 58 years (Lichtheim 1973: 12-15). Since he likely was no younger than 15 when he entered the military and was alive at least past year 2 of the reign of Thutmose I, he probably lived past the age of 50, and perhaps up to around age 60. Although these individuals are from Egypt rather than Canaan, their lives are from the period of the Late Bronze Age and they lived in a similar geographical and chronological sphere as the people of Canaan. Therefore, it is plausible, according to both textual data in Egypt and from the skeletal data in Canaan, that a small percentage of the population, probably more often

of the elite class, did live to the age of 60 or older in Canaan during the Late Bronze Age.

Ancient documents from or about Late Bronze Age Canaan typically do not aid in illuminating the sex ratio because the mention of females, and daughters in particular, is limited or omitted. Three documents from the Late Bronze Age Levant do demonstrate an approximately equal sex ratio, although mentioning daughters is not the norm. A sister and her daughters and sons are mentioned, indicating a possible 1:1 sex ratio in this family (Moran 1992: EA 89: 15-29); eight daughters and eight sons of King Keret are mentioned, suggesting a genetic 1:1 sex ratio in this family (Ginsberg 1946: 14, 35, 41); a wife, husband, and five other children including two or more daughters are mentioned, meaning that the sex ratio was slightly skewed in this family either towards male or female, but not extremely lopsided (Wiseman 1953: 53-54). However, composite skeletal data from the ancient world clearly supports and approximate 1:1 sex ratio, and the skeletal data specifically from Canaan agrees with this, thus it can be assumed that in most situations where daughters were not mentioned, they still existed. This implies that on average families would have had approximately the same amount of males as females.

5.7 COLLECTIVE DATA FROM CANAAN

A total of 428 human burials of identifiable age from the context of Late Bronze Age Canaan yield a collective average life expectancy from birth of approximately 23 years of age.⁶³ Because of the inexact nature of age at death estimates, 23 +/- 5 years may be a more realistic indicator of average life expectancy from birth. However, due to high rates of infant and child mortality, the average lifespan calculated from birth was drastically reduced, therefore approximate adult life expectancy for Late Bronze Age may be a more useful figure. Infant mortality was estimated to be extremely high—typically between 10% at the low point and 30% at the high point as seen from data at multiple sites, but averaging around 20% for the entire region. While infant mortality is difficult to estimate with precision due to the possibility of infant burials being underrepresented for various reasons, the burial data suggests that a figure of

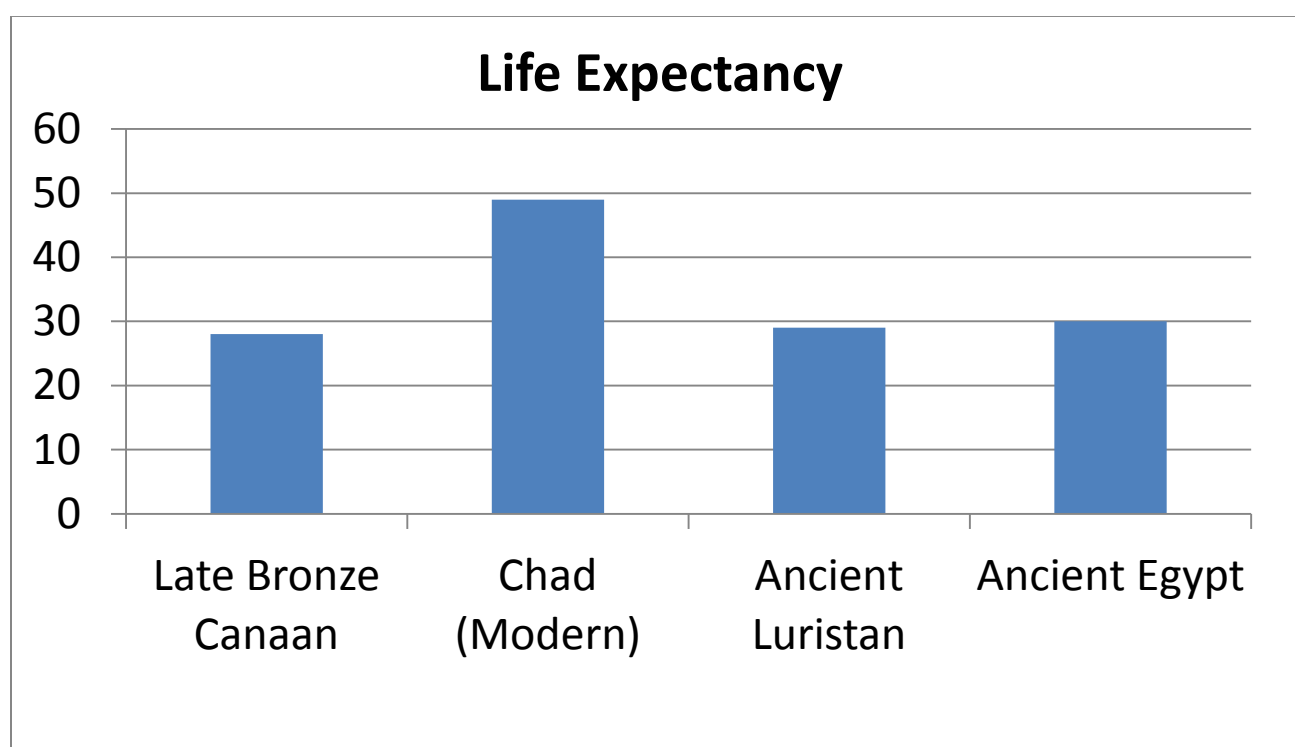
⁶³ Average of 22.5 years based upon 9645 total years divided by 428 individuals.

approximately 20% was standard for the Late Bronze Age in Canaan. Recognizing the trend of high infant mortality and high childhood mortality rates, the average lifespan of any person who lived past early childhood would have been significantly higher than the overall average. Although there was slight variance between the burial data at different sites, and some burials indicated only general adult age rather than specific figures, average adult life expectancy appears to have ranged from approximately 25 to 38 years of age. A small percentage of the population, about 3%, apparently lived extraordinarily long lives, reaching the age of 60 or more. These people would often have seen three generations during their lifetime.

Table 5.21: Regional Life Expectancy and Infant Mortality⁶⁴

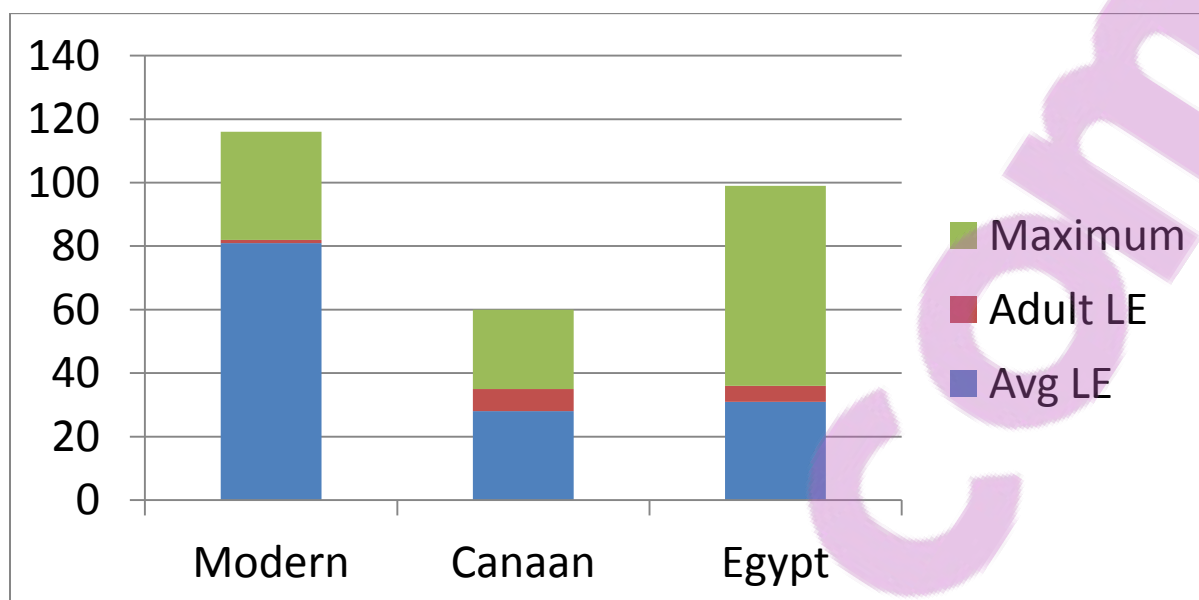
| Age at Death | Adult Expectancy | Infant Mortality | Age 60+ |
|-----------------|------------------|------------------|---------|
| ~23 +/- 5 years | ~25-37 years | ~20% | ~3% |

Graph 5.1 Average Life Expectancy Comparisons⁶⁵



⁶⁴ Use of ~ (tilde) indicates "approximate."

⁶⁵ Using the average high of 28 years for Canaan.

Graph 5.2 Ancient Life Expectancy Variations

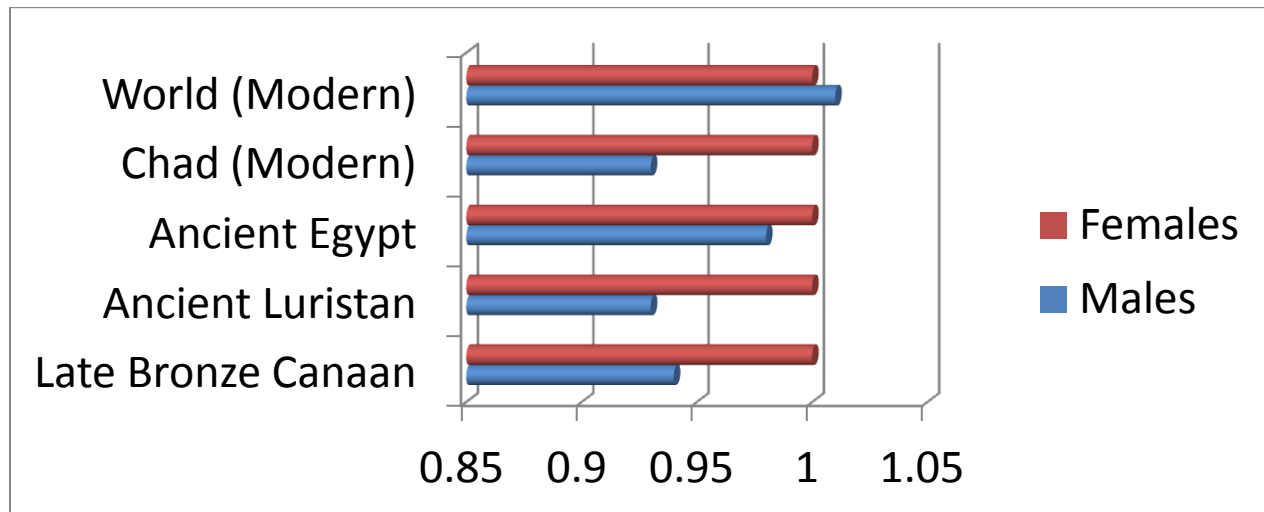
The overall sex ratio was calculated from a smaller sample size of 184 individuals. The ratio was found to be close to even at approximately 0.94:1 males to females.⁶⁶ This falls within normal human sex ratios known from both the ancient and modern world. Although the ratio is skewed slightly in favor of females, this is the typically skew in the modern world for the living sex ratio. The total living population sex ratio in modern developing nations—slightly skewed in favor of females—was very likely also the case in Late Bronze Age Canaan. This female skew may have been due to increased risk of death for males.⁶⁷ Other possible explanations for this slight skew in Late Bronze Age Canaan include less identifiable male burials due to poor skeletal preservation, or that fewer males were buried in normal cemeteries due to their increased chance of death away from home.

Table 5.22: Sex Ratio Comparisons

| Late Bronze Age Canaan | Ancient Luristan | Modern 3 rd World (Chad) | Modern World (Total) |
|------------------------|--------------------|-------------------------------------|----------------------|
| 0.94:1 male/female | 0.93:1 male/female | 0.93:1 male/female | 1.01:1 male/female |

⁶⁶ Based on 89 identified males and 95 identified females.

⁶⁷ Death in war, agricultural work, hunting, exploration, or merchant travel.

Graph 5.3 Ancient Sex Ratio Comparisons from Burials

5.8 COMPARATIVE DATA FROM THE MODERN WORLD

The burial data from Late Bronze Age Canaan suggests an approximately even sex ratio. Due to the source of the data being burials, this figure may be more representative of the ratio at birth than the living adult sex ratio. The overall sex ratio for the modern world is calculated at approximately 1.01:1 male/ female, with a slightly higher ratio of males at birth close to 1.06:1 males/female (Grech et al 2002: 1010-1011; cia.gov/library/publications/the-world-factbook/geos/xx.html, sex ratio). Due to the higher death of males for a variety of reasons, the sex ratio of living humans is almost exactly even. In the modern countries that Late Bronze Age Canaan encompassed, total population sex ratios are 0.96:1 male/female (Lebanon), 1.03:1 male/female (Syria), 1.01:1 male/female (Israel), and 1.03:1 male/female (Jordan) (Sex Ratio, 2013 estimates: cia.gov/library/publications/the-world-factbook/geos/le.html;

cia.gov/library/publications/the-world-factbook/geos/sy.html;

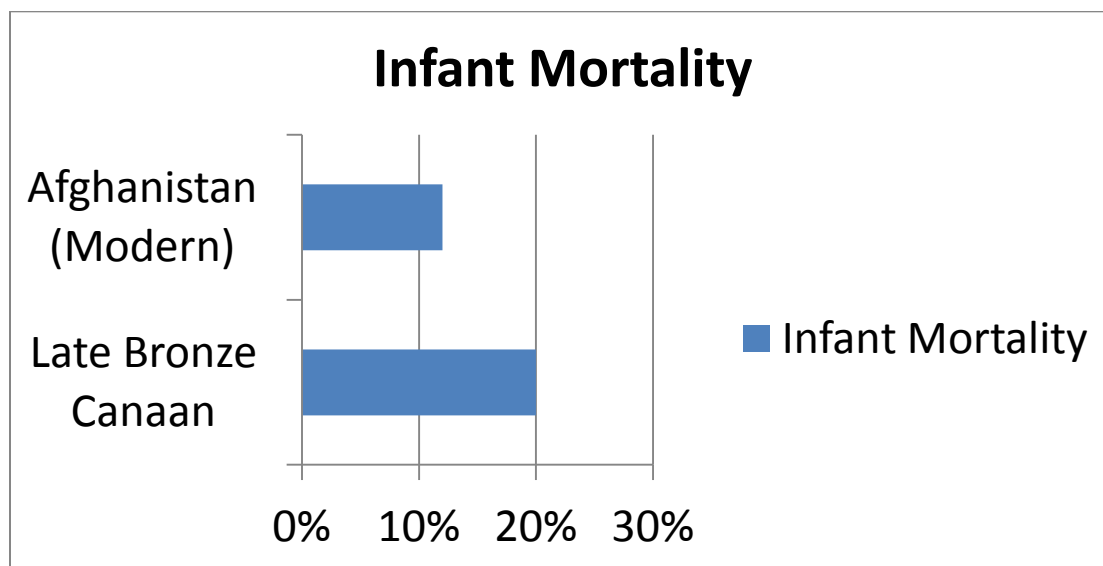
cia.gov/library/publications/the-world-factbook/geos/is.html;

cia.gov/library/publications/the-world-factbook/geos/jo.html). In the developing nation of Chad, which has conditions more similar to ancient Canaan, but still far better in terms of technology and medicine, the total population sex ratio is 0.93:1 male/female (<https://www.cia.gov/library/publications/the-world-factbook/geos/cd.html>). All of these sex ratios are nearly the same, and the ratio derived from skeletal data in Canaan fits

precisely within these bounds. Because the data from Canaan appears to agree with both modern and other ancient sex ratios, this suggests a genetic constant throughout historical human societies. This concept has important implications in Late Bronze Age Canaan for understanding the total number of people per nuclear family when only males are often mentioned, or in overall populations when males are more often mentioned or counted.

Infant mortality rates in Late Bronze Age Canaan appear to have been substantially higher than anything in the modern world, but low or moderate in ancient terms. Burial data suggests that the normal infant mortality rate was between 10% and 30%, generally averaging at about 20% for the Canaan. However, in the modern world, the highest infant mortality rate for any country, Afghanistan, is approximately 12% (<https://www.cia.gov/library/publications/the-world-factbook/geos/af.html>). This much higher figure for Canaan is understandable in light of the massive gap in medical technology and available medicines and hospitals between the Late Bronze Age and the modern world.

Graph 5.4 Infant Mortality Rate Comparison



Like infant mortality rates, life expectancies in the modern world are drastically different than those of Late Bronze Age Canaan. For example, Chad, which has the lowest life expectancy at birth of any country in the world, is still far higher at approximately 49 years than Late Bronze Age Canaan, which compares with a figure

around half that of Chad at 23 +/- 5 years (<https://www.cia.gov/library/publications/the-world-factbook/geos/cd.html>). Modern medicine and technological improvements affecting diet, even though not available to all around the world, has substantially increased life expectancy of human populations.

5.9 CONCLUSIONS

In comparison with aforementioned data from both the ancient world and the modern world, the sex ratio for Late Bronze Age Canaan is approximately the same, near a 1:1 ratio. In the category of age at death, however, the ancient Egyptian burials tend to have a significantly higher average age, while those of the Bronze Age Aegean and Bronze and Iron Age Luristan are more comparable to Canaan. This could be due to better living conditions along the Nile River, or it could be skewed if the ancient Egyptians were less likely to bury infants, children, and non-adults in traditional cemeteries, which appears to be the case. From the burial data in Canaan and the attested high infant mortality rate, exclusion of infants or young children in burials does not appear the norm when house jar burials are taken into account, except in situations where a fetus or newborn may have been disposed of.

Thus, a typical family, village, or city in Late Bronze Age Canaan would have had approximately the same amount of males as females with a possible skew slightly in favor of females. This slightly higher ratio of females has significant implications for family lists from Canaan and the Levant which often purposefully refrain from mentioning daughters. Residents of a typical settlement could expect a high percentage of their infants or young children, generally about 20%, to die before the age of 3 or 4. Those living into adulthood would normally live to 27-38 years of age unless some violent calamity befell them. A very few people, approximately 3% of the population, would have lived to age 60 or beyond, which is attested by skeletal data and supported textually by the age of certain prominent Egyptians from the time period.

CHAPTER 6

METHODOLOGY FOR ESTIMATING SETTLEMENT POPULATION IN LATE BRONZE AGE CANAAN

6.1 INTRODUCTION

There are several techniques that archaeologists use to estimate demographic settlement data in an ancient context, summarized below, but many of these techniques would not yield accurate estimates or are not suitable for a demographic study of Canaan during the Late Bronze Age. According to the methodology proposed by the author, the use of specific data from archaeological material relating to house size, family size, site size, and residential percentage can be used to estimate individual settlement population for ancient Canaan. However, when only fragmentary data for a particular area or site within Canaan is available due to lack of excavations, surveys, data from ancient texts, or relevant nomadic studies, other options exist. These alternative options include ancient topographical lists or other ancient references to cities occupied in the Late Bronze Age, regional averages for residential site percentage from the time period, and nomadic regional population densities derived from the study of nomads in similar technological and geographical spheres.

6.2 POPULATION ESTIMATION TECHNIQUES USED FOR THE ANCIENT WORLD

Population density and total population in Late Bronze Age Canaan are prime focuses of this demographic study, and the two are intertwined in the context of a defined region. In demographic archaeology, the two basic approaches for calculating population estimates involve using either settlement data or carrying capacity; within these two basic methods are several different approaches. It has been demonstrated that population estimates derived from settlement data, when available, are the most accurate for the ancient world (Renfrew and Bahn 2004: 460-461). A prevalent technique for determining the approximate population of an ancient city or region, seen in multiple studies of the ancient Levant, is to multiply the total inhabited area by an estimated population density coefficient (e.g. Finkelstein 1996: 244; Ilan 1995: 305; Bunimovitz 1989: 152; Broshi and Gophna 1986: 74; Shiloh 1980: 26). Conducting a

surface survey of ceramics to establish occupation and a density coefficient from the frequency of sherds is another method, although imprecise, sometimes used to calculate total population of a site or area. Other techniques propose estimations based on a regional level survey instead of the micro level or more precise individual settlement calculations, which tend to not be utilized in calculating regional totals for large areas.

6.2.1 Ceramic Survey Technique

The ceramic survey technique has been used to confirm occupation in a particular period and to estimate hypothetical site population density in the area of the Eastern Mediterranean, specifically in ancient Greece; it involves intensive survey based on the distribution and density of ceramics at the site (Bintliff and Sbonias 1999: 1). This would be useful for determining Late Bronze Age occupation in sections of Canaan where no excavation has been carried out, but is unnecessary for sites that have been excavated. However, drawing further conclusions from this method must be avoided, as the relation of ceramic data to population varies from region to region, as well as does the intensity of each survey, thus making it unreliable to draw specific and direct correlations between regions such as Greece and Canaan (Bintliff and Sbonias 1999: 2-3). Further, the data from this method is far too imprecise for many applications and should not be used when much better data is often available. This technique is satisfactory only when dealing with a high number of sites over a large area, but the data it provides is broad and non-specific, too often based only on theory rather than hard archaeological data. It may still serve, however, in a secondary role to techniques which provide more meticulous data and methodology in evaluating ancient texts describing relevant aspects of Canaan in the Late Bronze Age. This is due to the increased availability of excavated sites and cemeteries in Canaan, along with data from Late Bronze Age texts. Also, an intensive single site version of this survey technique can be used to determine the approximate Late Bronze Age occupational extent of a multi-period site for situations in which excavation data is sparse or insufficient. Therefore, the methodology that this current study suggests is most useful for obtaining precise demographic data for Late Bronze Age Canaan includes

population density and totals from house and family data, analysis of settlements and their use of space, the factoring of a nomadic population element in the region, and the use of relevant ancient texts.

6.2.2 Carrying Capacity as a Means of Population Estimation

A much different method used to estimate population involves the carrying capacity or agricultural output of an area to determine the total sedentary population that could be supported. It has been estimated that Dynastic Egypt produced about 679 kg of grain per acre, which using Hassan's equation and Butzer's total of arable land in Old Kingdom times would amount to a population support number of about 1.4 million on agriculture alone—a figure adjusted for reseeding and storage loss (Hassan 1981: 45). This figure seems agreeable to the various other estimates, especially factoring in the use of domesticated animals for food sources, and possibly even imports.

Part of estimating population based on agricultural data includes the calculation of cattle or other animals to determine the possible number of people that this animal food supply could support. In a study of an East African cattle herding group called the Karimojoong, it was demonstrated that a herd of 100 cattle can support 8.44 persons per year. Though the Karimojoong only partly relied on cattle for nourishment, at an estimated 34%, it was an additional food source for the population that can be hypothetically quantified and related to total population support (Hassan 1981: 48). It is known that the Egyptians maintained herds of cattle at this time, and also that at least during certain periods officials took a cattle census approximately every two years. Unfortunately, the actual numeric data is sparse, and possibly incorrect as well. However, on the South Saqqara Stone in Merenra's section there are some apparently readable numbers related to the cattle census and counts of other animals, and the numbers 107,434 and 1,007,287 relate to cattle (Baud and Dobrev 1995:41). The sum of these cattle numbers used in Hassan's equation would support approximately 94,000 people. There were other animals the ancient Egyptians raised for food, but this is simply an example which demonstrates a slightly larger population number than that calculated purely by cultivatable land support, allowing a hypothesis of near 2 million in the more rural Old Kingdom period to be plausible. According to a hypothetical

demographic table constructed by Butzer, the population of Dynastic Egypt in the area of the Nile would have been between approximately 1.93 million, based on square kilometers of arable land in the Nile floodplain (16,100) and estimated population densities (120 per square kilometer), which is based on the agricultural output calculated by Baer (Butzer 1976: 83). Adding the population support of the animals, and the number easily increases to over 2 million. Butzer's figures rely upon the use of artificial irrigation and "sluice gates" established by the time of the First Dynasty (Butzer 1976: 107). In contrast to this figure, the estimates of population density for a foraging society in Egypt before the shift to agriculture is placed at 30 persons per square kilometer of foraging land, equating to an approximate forager population of 483,000 for the entire country (Allen 1997: 145). Using this carrying capacity methodology based on agricultural output and land under cultivation, Baer estimated a total ancient Egyptian population of approximately 4.5 million at the beginning of the 19th Dynasty—roughly equivalent to the time of Late Bronze Age II in Canaan (Baer 1963: 42-44).⁶⁸ According to environmental data compiled and interpreted by Butzer, the modern Nile floodplain has existed in its essentials since the Old Kingdom (Butzer 1976: 28). Also, state formation occurred much more rapidly in Egypt than in other areas of the ancient Near East, even though the Nile Valley was "underpopulated" at the time of the creation of the Egyptian state, the unification period (Allen 1997: 135). In addition to these trends at the beginning of the Old Kingdom, the depopulation of the desert frontiers due to a drier cycle which began in 3400 BCE reached its modern, arid condition by 2500 BCE, forced the population into the Nile Valley (Allen 1997: 147). Butzer specifically links the abandonment of several of these desert-margin settlements following the Old Kingdom period to this decreased rainfall (Butzer 1976: 39). This suggests that demographic data for ancient Egypt can be fairly consistent and thus somewhat predictable from the Roman period back to the beginning of the Old Kingdom.

Unfortunately, to apply the same assumptions and methodology to Canaan would be unreliable because of the wide variances in climate and topography, and the differences in settlement practices and culture during various periods, which would result in highly inaccurate figures for Late Bronze Canaan. Agricultural output in Canaan

⁶⁸ The population projection was based off of an estimated 16,200 km² of cultivated land in use at the time.

could, however, be used for comparative analysis. According to a survey of what was Western Palestine under the British Mandate in the early 20th century, there were approximately 9,000 square kilometers of land in the area suitable for cultivation (Shaw 1946: 566).⁶⁹ In hectares, Western Palestine encompassed approximately 2.6 million hectares, but according to examination there were only 0.937 million hectares (9,370 square kilometers) of cultivatable in the British Mandate period, or 36% of the total land (Reifenberg 1947: 158-159). Using this relatively modern sum of cultivatable land, and recognizing that it encompasses slightly less than the area of Late Bronze Age Canaan, according to proposed equations for ancient Egypt a maximum agricultural support for ancient times in Canaan under similar conditions would have exceeded 1 million, or a maximum forager population perhaps around 300,000 (Butzer 1976: 83; Allen 1997: 145). One can see the obvious difference in total population estimates between Egypt and Canaan of the same period, but these numbers only serve as a general comparison to show that Canaan in the Late Bronze Age would have had a substantially smaller maximum potential population than Egypt of the same period—perhaps somewhere near 20% of the population of Egypt.⁷⁰ However, this method is imprecise, fraught with problems, and is useful only in postulating a theoretical upper limit for the population of Canaan in the Late Bronze Age. Further, the approach of estimating ancient populations through carrying capacity has been critiqued as an invalid method (Hayden 1975: 11-16). It is nearly impossible to calculate the amount of food in an area useable by a group, because the calculation of potential foods available to technologies is elusive and uncertain, and the cyclical nature of the resource environment lacks data and is hypothetical at best (Hayden 1975: 12). Further, attempting to calculate population based on water resources must make assumptions both about all known and useable water sources, the nature of their use, and the amount used per person—including people of different sizes, ages, health status, metabolism, and requirements from lifestyle. Because of the consistency of the flooding of the Nile River and its prominent role in agriculture, carrying capacity estimates derived from Nile flooding and the

⁶⁹ It should be noted that the area of British Mandate Western Palestine did not encompass all of the area of Canaan during the Late Bronze Age. Thus, the cultivatable land area for Canaan would have been higher than that of Western Palestine.

⁷⁰ Approximately 4.5 million for Egypt versus approximately 1 million for Canaan.

agriculture allowed by this flooding system may be roughly plausible. However, in ancient Canaan no equitable system existed. Instead, a more detailed and specific methodology related to household population and settlement sizes based on data from sites in Late Bronze Age Canaan will be developed and utilized to yield much more accurate results.

6.2.3 Ancient Census Lists and Estimating Population

Ancient census lists are useful for calculating ancient populations or for comparative studies between ancient civilizations that may give insight into a particular civilization, such as Canaan, that does not have formal census lists. However, census lists from various time periods in Egypt may be useful in comparative studies to test whether or not Canaan may correlate to other ancient cultures in population density or the consistency of population increase over time. In late antiquity, Josephus claimed 7.5 million inhabitants in Roman Egypt, excluding Alexandria, based on poll tax numbers; Butzer, and Baines and Eyre, agree that Diodorus gives a figure of 7 million for the total population of Egypt in the early Ptolemaic Period (Butzer 1999: 251).⁷¹ A census from an earlier Egyptian period allows for the placement of a second population estimate on the timeline of ancient Egypt. Frank Yurco's study of the census taken by Narmer coincides with an Old Kingdom population exceeding 2 million. Narmer's census shows 120,000 males in the Delta, which would yield a population of 480,000 to 600,000 if each is allotted one wife and two to three children on average. Since it is believed that Upper Egypt had a slightly higher population, Yurco has estimated Upper Egypt at 600,000 to 800,000, giving a total population between approximately 1.1 and 1.4 million during the First Dynasty (Yurco 1995: 88-90). According to settlement, agricultural, and census data, the population of Egypt slightly later and in a more developed period, at the height of the Old Kingdom, may have approached or even exceeded 2 million.

However, rather than a steady increase in population throughout Dynastic Egypt, there were several factors leading to decreases in population to take into account between the end of the Old Kingdom and the Roman period. Charting population growth and taking into account the disasters of the 1st and 2nd Intermediate Periods, a total

⁷¹ Cf. Diodorus I 31.8 and Josephus, Wars of the Jews II 16, 4.385.

population for Egypt during the Late Bronze Age can be hypothesized at about 4 to 4.5 million. Because of a probable decline in the total population during the extreme drought and famine at the end of the Old Kingdom and beginning of the First Intermediate Period, the high flood disasters of the twelfth and thirteenth Dynasties, the Second Intermediate Period, the Hyksos domination and expulsion, the decentralization of the Third Intermediate Period, and various other known and unknown factors, the population numbers may be slightly higher in the Old Kingdom than what would be expected by direct extrapolation from Roman times (Butzer 1976: 28-29; Butzer 1999: 251). Fagan specifically notes one of these population decreasing disasters recorded in the tomb of Ankhtifi, that in the period of ca. 2180-2160 BCE, massive droughts in Upper Egypt caused famine, eventually leading to political disorder in ancient Egypt (Fagan 1999: 99). This resulted in premature death, starvation, a decline in birth rates, looting, and of course decreased agricultural output on a massive scale, leading directly to a large overall population decrease (Fagan 1999: 100). Besides the massive famines and disasters sometime after the fall of the Old Kingdom written about by Ankhtifi and Ipuwer, and the troubles and war of the Hyksos period, the Third Intermediate Period was decentralized, producing very few administrative documents, and arguably coinciding with a decrease in population (Baines and Eyre 1983: 67). Instead of a uniform growth rate from the Old Kingdom to Roman times, all of these events would logically contribute to a reduction in the expected total population by the time of the census taken by Josephus. This is likely also the picture one would find of the region encompassed by Canaan between the Early Bronze Age and the Byzantine period if census lists were available, or by looking at various estimates through archaeology.

For the general geographical area of Canaan, there have been a variety of population estimates from numerous time periods, including, like Egypt, census figures from the Roman period recorded in the writings of Josephus. Based on Josephus, Byatt argued that Roman Judaea Province had a population of 2,265,000 in the 1st century CE (Byatt 1973: 51). However, this number is questioned or rejected by several scholars due to its appearance as grossly inflated. Even if accepting this population total for the Roman Period, there are problems of correlation with Late Bronze Age Canaan due to difference in regional boundaries, technology, architecture, and culture.

Additionally, events in the southern Levant from the Late Bronze Age to the Roman period would prohibit a uniform population increase. According to various estimates covering the area of the modern state of Israel (not the entirety of ancient Canaan), there was a population of 150,000 for cities or towns of the Early Bronze II-III, a decrease at the beginning of the Middle Bronze Age and a resurgence to either 140,000 for the cities or towns and 200,000 for the total population at the end of the Middle Bronze Age, estimates of around 50,000 to 100,000 for cities or towns of the Late Bronze Age, 150,000 for the cities or towns of the Iron Age, and in the Roman and Byzantine period a low end population of about one million (Broshi and Gophna 1984: 43, 50; Broshi and Gophna 1986: 87; Ilan 1995: 305; Bunimovitz 1989:152; Finkelstein 1996: 244; Shiloh 1980: 33; Broshi 1979: 6-7). Even if these estimates are in error due to methodology, they still demonstrate that population fluctuations occurred over time according to archaeological and textual data. Thus, a constant increasing population slope cannot be reliably used between distant known population points in time to discover unknown population points in time. Data restricted to the Late Bronze Age is necessary in order to determine an accurate population estimate. Still, none of the above estimates are known populations in time, nor were any done at a micro level or with the use of ancient textual data. With no Nile, generally smaller cities, less centralized infrastructure, and societal disruptions, Late Bronze Age Canaan, even with similar livable land area, likely would have had a substantially smaller population than Egypt in the New Kingdom. That total population number can only be accurately estimated by examining each settlement in detail, using a formula specifically crafted for Late Bronze Age Canaan, and adding in an estimated nomadic population based on previous studies of nomadic populations in similar technological and climatic spheres. Fortunately, a type of census information does exist for Canaan though, in the form of family information that can be used in conjunction with archaeological data.

6.2.4 Population Density Coefficient

The density of 250 persons per hectare, or sometimes 200 persons per hectare, is derived on analogy with pre-modern Muslim settlements, primarily from the Late Ottoman period in the Levant, where it is assumed that habitation patterns in the past

did not change much until the 20th century (Zorn 1994: 32). However, there is very little in common between Muslim settlements of the 19th century and settlements of Canaan in the Late Bronze Age. Not only are these settlements separated by almost 3,500 years, but the technology, culture, religion, architecture, and ethnicity are all different; a direct comparison is invalid because the adaptation is entirely different. Thus, in order to accurately assess the population of settlements in Late Bronze Age Canaan, a methodology specific to that period and region must be derived from micro studies and data specifically related to the relevant time and place.

Broad application of uniform population density coefficients have often been employed in estimating ancient population data. Baer estimated a rural population density of 184 people per square kilometer in the Nile floodplain for the entire period of Dynastic Egypt, and a slightly higher 225 per square kilometer estimated for ancient Greece of the same time period (Bintliff and Sbonias 1999: 8). This number, when multiplied by the estimated square kilometers of inhabited land in the boundaries of ancient Egypt, yields an approximate maximum rural population of 1.5 million people for Dynastic Egypt, excepting the major towns and cities—the total population including urban areas would be higher (Butzer 1976: 77). Adding estimates for the population of major cities and towns, resulting in a larger total, would vary based upon the urbanization level of the culture and the typical population density at a particular point in time. Uphill, using the same basic technique but applying it to towns and cities, generally uses a number of 250 people per acre (617.5 per hectare) or 250 per 0.4 hectares (625 per hectare) in a town for ancient Egypt (Uphill 1988: 15). This is only used for calculating urban or suburban populations, and is not applicable to calculating any possible nomadic population. According to Butzer's calculations, with an estimated population density of the ancient city of Memphis at 550 per hectare, urban Memphis during its peak in the Old Kingdom had a total population of approximately 17,050 people (Butzer 1976: 102). Butzer's estimate of Per Ramesses in New Kingdom times, the same period as the Late Bronze Age, puts the population of the city at 100,000 (Butzer 1999: 250). New Kingdom Per Ramesses according to this estimate reached 350 hectares, although after subsequent excavation Bietak later estimated the size at up to 600 hectares—substantially larger than any site in Late Bronze Canaan, and

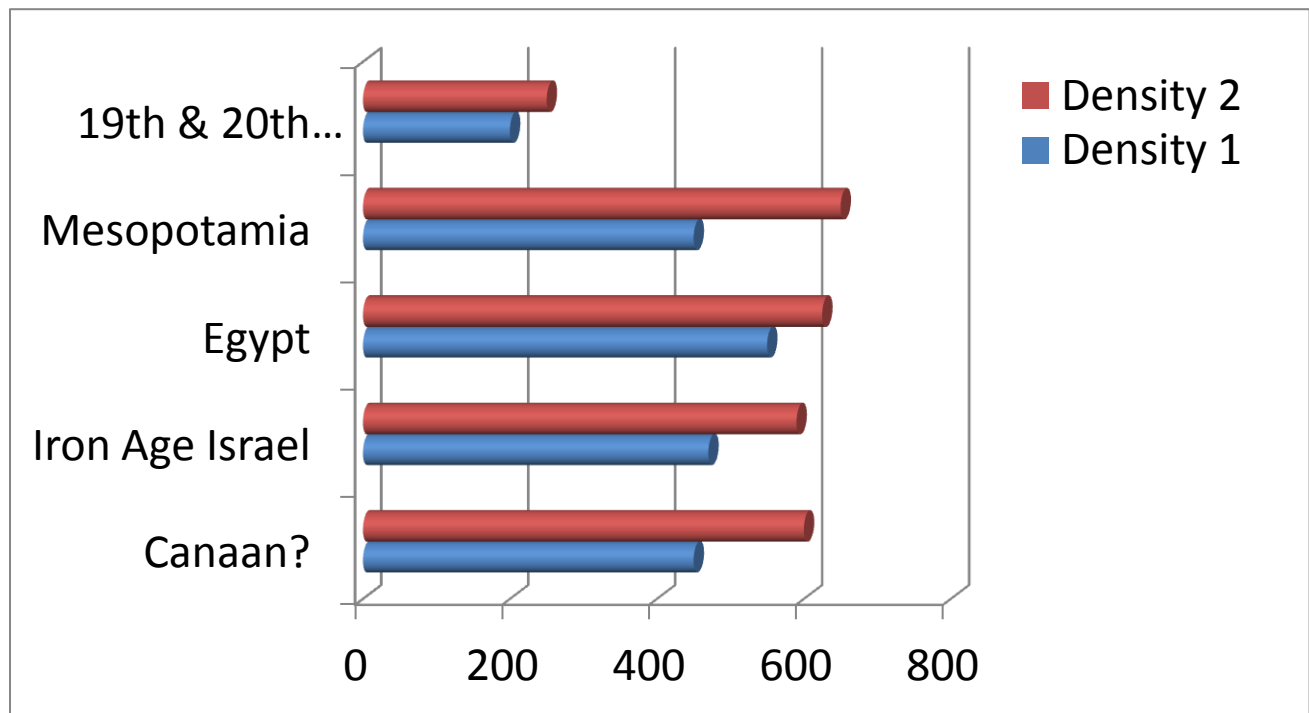
indicative that no city during this period in Canaan would have matched or exceeded its estimated population (Bietak 2010: 12; Butzer 1999: 250). Even though New Kingdom Egypt coincides with Late Bronze Age Canaan in time, is a geographical neighbor, and had a similar technology level, these population density coefficients cannot be directly implemented into Canaan of the Late Bronze Age because Canaan had a culture, geography, and architectural tradition distinct from Egypt. Constructions of New Kingdom cities such as Akhetaten and Per Ramesses and the sheer size of their metropolitan areas suggests a population increase and a move to more urbanized culture during this period (Uphill 1988: 60, 62). Similar trends may have occurred in Canaan beginning in the Middle Bronze Age and initially flowed into the Late Bronze Age before settlement change occurred. The increased urbanization of New Kingdom Egypt makes accurately estimating town and city populations important for demographic estimates of Egypt in this period. The emphasis on towns and cities is also applicable to Canaan during the Late Bronze Age, since the many towns and cities discovered archaeologically, in addition to the Amarna correspondence, indicate that a major segment of the population was settled in towns and cities during this period.

Past studies of ancient Canaan have used a uniform density coefficient. The primary problematic aspect of previous Canaan population studies is the assignment of an all-encompassing density coefficient multiplied by total site area. The studies start with the flawed premise that a density coefficient of 200 or 250 people per hectare is correct, when in fact this figure is based primarily upon a study of modern villages in Iran (Broshi and Gophna 1986: 73-74; Finkelstein 1996: 244). This practice is due to convenience and availability of data, but there are obvious problems with such a simplified view of ancient population density. Interestingly, a study on old quarters of Middle Eastern cities, specifically Iraq, demonstrates a density coefficient of around 450 people per hectare (Adams 1981: 350). The building density of old quarters of cities would probably be more similar to building density of ancient cities than modern village density; the old quarters database is a closer comparison than modern village density calculation. Still, broad modern ethnographic data should not be used in place of specific ancient data.

The results of studies utilizing a 200 to 250 people per hectare constant were done employing a very generalized population density coefficient derived from studies of villages and sections of cities not yet modernized in the Middle East in the 18th, 19th, and 20th centuries rather than data specifically from Canaan in the Late Bronze Age, or other ancient periods, should be considered inaccurate due to invalid correlation (Broshi and Gophna 1986: 74; Shiloh 1980: 26; Adams 1981: 349-50; Kramer 1980: 322-27; Postgate 1994: 51). Finkelstein suggested correlating the household population trends of Muslim villagers living in British Mandate Palestine directly back onto Bronze Age Canaan by arguing that this proposed ethnographic parallel indicated a household of approximately 4 or more people for the Bronze Age as well as British Mandate Palestine villages (Finkelstein 1990: 49). This drastically affects the population density coefficient estimate by making it substantially lower than calculations using a higher per household or per family population. The primary flaw, as seen in other studies, is that all of the household population and settlement density coefficient estimates used are derived from studies of modern and primarily Islamic populations (Finkelstein 1990: 48-50). It is acknowledged, yet not utilized, that a population density coefficient for ancient settlements “based on data from some Middle Eastern towns in recent generations...cannot be applied to the study of historical demography” (Finkelstein 1990: 50). Unfortunately, this astute observation that data from later, unrelated periods and cultures should not be projected onto an ancient culture is not carried through in the majority of previously utilized methodologies for estimating settlement populations in the ancient Levant, or even other regions of the ancient world.

While useful for comparative analysis, data from the modern period is not the most precise basis for making demographic calculations in a specific region during the Late Bronze Age. Although a figure of around 200 people per hectare is used for the above studies, based on 18th to 20th century Middle Eastern villages, a population density study of an ancient Sumerian city yielded a range of between approximately 250 and 1200 people per hectare and was based on a detailed analysis of dwelling space at the ancient site to determine possible density coefficients rather than beginning with an assumed premise (Postgate 1994: 62). Postgate, the archaeologist who conducted the study, leans more towards a figure of around 450 people per hectare, perhaps

influenced by the Adams study in modern era Iraq (although allowing for the possibility of a higher density) because of the amount of dwelling space per person that this figure allows—about 10 square meters—although this 10 square meters of dwelling space per person is on the high end of the scale for dwelling space studies which demonstrate a worldwide constant between approximately 4.7 and 7.5 square meters through more recent studies (Postgate 1994: 63; Brown 1987:1-49). Thus, the population density was likely even higher than the conservatively preferred estimate of 450 people per hectare. Uphill uses a population density coefficient of about 625 per hectare in towns of ancient Egypt, while Butzer uses a population density of 550 per hectare for an Old Kingdom city in Egypt (Uphill 1988: 15; Butzer 1976: 102). From a detailed study of house size and residential area, Zorn determined a density coefficient of between 470 and 590 people per hectare at Iron Age Nasbeh (Zorn 1994: 44). Compared to the figures referenced previously for estimates of 200 to 250 people per hectare in Middle Bronze and Late Bronze Age Canaan, a density of 450 to 600 or more people per hectare appears extremely high. However, it is important to note that the higher figures are at least partially derived from ancient data rather than modern data, and therefore are much more realistic. This indicates that the 200 to 250 people per hectare coefficients are far too low for use in Late Bronze Age Canaan, and thus would give both specific site populations and overall region populations far lower than reality. Still, a general population density for Canaan in the Late Bronze Age must not simply be assumed based upon previous studies, but based upon archaeological and textual data restricted to the period and region, and further applied on a site to site basis.

Graph 6.1 Comparison of Population Density Coefficients

6.3 METHODOLOGICAL TECHNIQUES DERIVED FROM PREVIOUS STUDIES

No comprehensive population studies of the Late Bronze Age Levant using complex methodology and period specific data have been done, but some methodologically relevant studies have been conducted that focus on only one site, city, or city-state in the Levant and the Ancient Near East. The primary population estimate equation for settlements that will be used in this study, developed through synthesis and new ideas, is based off of detailed demographic studies conducted for Late Bronze Age Ugarit, Late Bronze Age Alalakh, Sumerian Tell Abu Salabikh, and Iron Age Tell en-Nasbeh, with modifications and additions to give increased precision and relevance to Late Bronze Age Canaan (Garr 1987: 31-43; Casana 2009: 7-37; Postgate 1994: 47-65; Zorn 1994: 31-48). The techniques used in the aforementioned studies are applicable to all ancient settlements, but to be accurate, the data used in conjunction with the methodology can only be from the ancient southern Levant. Some of the techniques are useful for understanding certain aspects of the demography of the region which were tailored and applied to a study of Canaan in the southern Levant.

6.3.1 Demographic Techniques Derived from Ugarit

Although Ugarit is located outside of Canaan proper, it is nonetheless a Semitic city which is located in the same Late Bronze Age Levant as cities of Canaan, and is of a similar geographical and cultural sphere and in the same time period. Thus it is relevant to understanding the settlements of Canaan in a demographic context. Garr's study contains techniques and principles that are adaptable for use with settlement data in the Canaan region.

In a 1987 study estimating the population of Late Bronze Ugarit, techniques and data from previous studies were collected and evaluated to compose a more accurate methodology and result (Garr 1987: 31-40). While most population studies simply multiply the total site size by a population density constant, this study suggested two notable modifications to methodology. The first modification is a division of a site into residential and public areas, so that the primary area under examination for a population figure would be the residential area, or percentage of the site occupied by residences (Garr 1987: 34-35). This allows a more accurate population estimate for sites that have extensive public areas—areas that would have a lower population density. The second modification is the use of contemporary epigraphic data that details an essential factor—the approximate household size—specifically for sites in Late Bronze Age Canaan (Garr 1987: 32-34). In addition to citizen residents of a household, the possible presence of servants, slaves, and their children need to be factored (Postgate 1994: 62).

6.3.2 Alalakh and the Use of Contemporary Records

A 2009 study of Alalakh and the surrounding region during the Late Bronze Age also stressed the importance of using contemporary epigraphic data to understand ancient families, households, and towns (Casana 2009: 19, 27-31). This method was explained in the Ugarit study, but never used. Some of the census lists from Alalakh are claimed to list the total number of households in a particular satellite town (Casana 2009: 28). Equating the named town with a known site would give an excellent indicator of population density in the Late Bronze Age Levant for satellite towns rather than urban centers (Casana 2009: 30). There are many documents from Alalakh IV of the Late

Bronze Age that record town census lists and town household lists (von Dassow 2005: 29-37). The census lists record the men of a town, naming them and grouping them within classes (von Dassow 2005: 43). One type of household list names the heads of household and groups them according to classes, while another type merely names the number of households and groups them according to classes (von Dassow 2005: 43). Casana proposes using household lists from towns to determine the number of households per site and extrapolate from there to an overall population number for various settlements. Unfortunately the extent or comprehensiveness of the lists are unknown, and it is often impossible to know what category is being recorded or what percentage of the total population each list represents (Casana 2009: 27-28). Thus, the extrapolation of using the lists as an exhaustive tally of the heads of households in each settlement is prone to massive error. It is quite likely that the lists represented only some people in the town, and not every single house. Further, the lists do not give the number of family members or people per household, but only the leader of the household. In these lists, by far the largest settlement known is Tuhul, in which there were 179 households mentioned (Casana 2009: 28; AT 189; SSAU IV.8). Yet, Tuhul has not even been identified, therefore its correlation with any archaeologically discovered and measured settlement is purely speculative. It could be a very small settlement comprehensively listed, or a medium settlement partially listed, or some other variant. Although the ideas are theoretically sound, the problem of the two major assumptions renders the study unreliable for comparative use with Late Bronze Age Canaan. Based on Casana's assumption and hypothesis, there were only between 47 and 192 people per hectare in towns and cities of Late Bronze Age Mukish, and by extension in the Levant (Casana 2009: 30). These may be the lowest population density estimates encountered in studies of the ancient Near East. The households are estimated to have contained six to ten residents—not a low household density. However, the overall density turns out to be significantly smaller than other studies because of the assumed number of total households at hypothesized sites. Zorn notes that excavation of the site of Tell en-Nasbeh in the Iron Age yielded 144 buildings per hectare in a residential area—80% of the number of households that Casana estimates for sites around 10 hectares (Zorn 1994: 37). Although it is the Iron Age rather than the

Late Bronze Age, and some differences in architecture and culture were present, the population density comparison should not be so far off. Since the number presented by Zorn is based upon actual excavation while the number presented by Casana is based on speculation about both lists mentioned being comprehensive of the households, and the two sites matching his tentative identification, the higher density arrived at by Zorn is more realistic.

An additional issue of importance that this Alalakh study brings to attention is that the presence of small satellite towns or settlements around an urban center which may have a minor archaeological footprint and no excavation or survey data may be easily overlooked when calculating the population of a region in the Late Bronze Age Levant (Casana 2009: 20). In addition to the phenomena of the lower city at sites in the Middle and Late Bronze Age Levant, there is epigraphic and archaeological evidence that many small settlements existed around urban and fortified centers. Considering the presence of these settlements is an important factor in establishing a more accurate population estimate for a region. The highlighting of the villages surrounding the main cities is a point that should be noted for Late Bronze Age Canaan. Surrounding Ugarit, for example, the countryside was populated by approximately 200 villages which had obligations to the seat of power at Ugarit (Heltzer 1976: 18-47). This city-state model is clear in Late Bronze Age Canaan, but many of the villages may remain undiscovered. The presence of small, undiscovered satellite settlements should be considered in the overall population total of the region. Additionally, this Alalakh region study demonstrates a population density phenomenon previously mentioned—as the area of a town or city site increases, the population density increases (Casana 2009: 30). Wiessner proposed an equation applicable to this concept: $\text{area} = \text{constant} \times (\text{population})^b$, where b is 2 for open camps, 1 for enclosed or defended villages, and $2/3$ for urban communities (Wiessner 1974: 349; Chamberlain 2006: 127). Thus, the sites with the largest area would likely also be the sites with the highest population density. This would be due to more dense building placement and smaller living spaces rather than larger family size. Although this study had flaws, the idea of directly correlating ancient textual data with archaeological data and extrapolating it into a model is the most accurate general methodology for reconstructing ancient settlement populations.

6.3.3 Methodological Considerations from Tell Abu Salabikh

A third relevant study of town and city population density in the ancient Near East was done with a focus on a Sumerian city in southern Mesopotamia called Tell Abu Salabikh (Postgate 1994: 47-65). While this study falls outside the specific region and period of Late Bronze Age Canaan, the methodology used in the study and the parallel information from an ancient settlement of the Near East is far more useful than a study focusing on modern era villages. The methods of “proportion of site area occupied by housing,” “correlation between house area and number of occupants,” and the average number of people per house were stressed and employed in a later study of the ancient Sumerian city of Tell Abu Salabikh (Postgate 1994: 53, 56, 58). The epigraphic data about persons per household greatly contributes to a more accurate estimate, as contemporary ancient sources can detail the approximate household population rather than using a hypothetical number based on modern ethnographic comparisons or guesses—a weakness based on an invalid assumption that ancient and modern settlements are essentially the same (Postgate 1994: 62; Kolb 1985: 592-93). If the measurements for a single house are known at any given site or an average in a particular region, this additional information can be used to determine the approximate number of households at a site, and thus the approximate total population. Because two of the most variable factors between sites may be the size of a particular house and density of houses, specific site data, comparisons between sites, and the number of people per household are all essential to an accurate study (Postgate 1994: 58).

Two of the most important factors in determining the population of a settlement (or region) are 1) site size and 2) use of space (Postgate 1994:48). This is further refined by defining total residential space and the amount of space used by each person or household. Postgate defines site size as “the area occupied by a visible mound or by an artefactual debris, or by both,” but he also notes that the extent of the ancient settlement may have exceeded the site’s observable modern size due to a variety of natural causes such as erosion and flooding (Postgate 1994: 48-50). Add to this removal of building materials reused for later settlements, and parts of a city or village may have nearly disappeared from the archaeological record. Further, villages or

suburbs which were occupied for only a short period of time may not be detectable without extensive excavation (Postgate 1994: 50). This suggests that sites mentioned in textual sources but “missing” in the archaeological record may not have been discovered or detected due to short occupation, covering from erosion or flooding, or the removal of building materials for reuse in a later, nearby settlement. Additionally, even if an area is surveyed, ceramic survey of a site or region may not detect all of the time periods represented at the site. This has been an issue specifically for the Late Bronze Age. In Jordan, results from excavations have shown that there was Late Bronze Age occupation at many sites that did not show Late Bronze Age material from surveys. Thus, “although survey techniques are now much advanced since the days of Glueck, it seems that we still have to be careful about the conclusions we draw from them” (Van der Steen 2004: 90). These findings apply to all of Canaan in the Late Bronze Age, and demonstrate that there may be Late Bronze Age strata at additional sites which have been surveyed but not yet excavated, or have been excavated but not to the level where a Late Bronze Age occupation would be. The lack of material found in surveys also suggests that many of the ancient sites may have encompassed more area than is detectable through survey or selective probe excavation. While some sites are surely missing Late Bronze Age strata on the archaeological record, only those missing sites that are named in ancient textual sources of the period should be factored into the overall population figure, rather than assigning an arbitrary percentage for the number of estimated additional sites. An estimate of an additional 20% of settlement area was used for missing sites for a study in of the Middle Bronze Age, but rather than guessing about the total area encompassed by missing sites, undiscovered sites named in ancient textual sources will be the only considered addition to total settlement area (Broshi and Gophna 1986: 73).

One of the aforementioned keys to refining the population density for settlements of Late Bronze Age Canaan is to demonstrate an average number of people per household from textual sources and an average house size from archaeological sources. Only this will give the most accurate population density figures for the particular region and time period. An additional problem with applying a static density coefficient to every site is pointed out—population density may have varied slightly with

site size or even from site to site (Postgate 1994: 51; Kramer 1980: 324-25). This phenomenon can be easily observed within modern cities, even from the same region and culture. Thus, as much as is possible, average house size and distribution should be analyzed on a site by site basis within Late Bronze Age Canaan. When this is impossible due to lack of data or excavation, use of a composite average would be the most effective method. Postgate notes that “instead of seeking a gross correlation of population to urban space, we can remove one element of possible distortion by tying the estimate of numbers of occupants more closely to the space they actually occupied—the houses where they slept, worked and ate—as opposed to the space they shared in public with other households—the streets, city wall and open spaces” (Postgate 1994: 55-56).

Although about a 10% loss is attributed for streets and lanes in ancient Mesopotamia, estimating a general loss due to streets in Late Bronze Age Canaan should be done on a micro rather than a macro scale—street loss as part of a residential insula and in public areas (Postgate 1994: 56). According to a multi-site study, Late Bronze Age city streets in the southern Levant were on average 2 meters to 3 meters wide and bordered with continuous buildings (Wright 1965: 51, 55). According to further urban analysis, in Canaan there was usually one main street of 5 to 7 meters in width, a few other major streets 3 to 5 meters in width, and then the bulk of the smaller, residential streets were about 1 meter to 2 meters in width (Ben-Shlomo 2012: Fig 5; Mazar and Ben-Shlomo 2005: 13; Yon and Callot 1997: 22; Baumgarten 1992: 150; Sellin and Watzinger 1913: Tafel IV). Garr factors in the residential sector of a city and also notes the loss of streets, alleys, open spaces, etc. when calculating living space (Garr 1987: 38). To account for the occasional wider street and avoid making sites denser than they may have been, an average street width of 2 meters will be used for residential areas, with one main street of 7 meters running the length of the settlement as part of the public space of a site. However, because many residential structures in settlements of Late Bronze Age Canaan were built up against the city wall or the bounds of the settlement, and *inusalae* inside the city would often have been situated next to other *insulae* with streets on only three or less sides, for the purposes of

calculating the total surface area occupied by an insula and its surrounding streets, an average 2 meter wide street will be placed on 3 sides of an insula rather than 4 sides.

Defining living space more specifically than a percentage of a site dedicated to residential buildings is another important factor in determining a more precise, albeit approximate total population figure. The subtraction of unused space such as walls, streets, and open areas will give a more precise figure for average space per person, which can be compared to previous studies and utilized for sites which have only been surveyed or insufficiently excavated (Postgate 1994: 53, 55; Broshi and Gophna 1986:86). This attention to the loss of living area due to streets and walls is essential for a more accurate population estimate. Although removing space used by large walls and streets from the equation may seem like a method that would only decrease a total population number, the relevant data for population density at a site is the number of people per household and the amount of living space per person. The issue of unused space or open public spaces in cities of Canaan is essential to understand for the accurate estimation of residential insulae and districts and their percentage within the overall site area. While cities of many other cultures throughout various historical periods sometimes had large portions of unused space within the city, this does not appear to be the case inside cities of Late Bronze Age Canaan. Instead, "excavation of Canaanite cities shows no open spaces within except the courtyards of palaces, mansions, and temples. The place of public concourse was about the gate, to a limited extend inside...but usually outside" (Daniel 1964: 60). The Ugaritic Epic of Aqhat from the Late Bronze Age mentions public gathering at the gate of the city, specifically in relation to the city leaders meeting and hearing cases of the residents (KTU 1.17:5:4-8; Smith & Parker 1997: 58). Excavation of Late Bronze Age levels at cities such as Beth-Shean, Beth-Shemesh, Megiddo, Taanach, Tell el-Ajjul, and Tel Yin'am all demonstrate extreme building density for cities of Canaan in the Late Bronze Age and the use of closely packed insulae (Mazar and Mullins 2007: Fig 1.7; Liebowitz 2003: 3; Ussishkin 2000: Fig 5.17; Wright 1985: figures 59 and 60; Lapp 1969: 27; Petrie 1931: Plate LIV). Thus, subtraction of large open or unused spaces in the residential sections of cities in Late Bronze Age Canaan is unnecessary and inaccurate according to the present

understanding of archaeological and textual data.⁷² While the religious and administrative districts appear to have had a relatively low population density, the residential districts of the cities may have had a very dense population, especially in walled or geographically bounded cities. Thus, instead of tending towards a lower total population, this newly proposed methodology may demonstrate a higher density and higher total population, while providing more realistic estimates because of the focus on time and period specific data.

One additional factor relating to residential dwelling space, overall house size, and population density must be noted for Late Bronze Age Canaan—the existence of two storey houses. This architectural trend allows the population density of a city to increase substantially while not consuming additional surface space within a city, thus altering the total population results drastically (Postgate 1994: 63). From excavations and recovered artifacts representing houses, there is ample reason to believe that many residences in the Late Bronze Age Levant, and Canaan in particular, were two storey buildings. The above studies and remarks suggest that the origin of the 200 to 250 per hectare figure is extremely arbitrary, anachronistic, and may be grossly in error; both density and total population may have been significantly higher.

6.3.4 Nasbeh and the Use of Houses for Demographic Calculations

Another important aspect of demographic methodology came from the study of a city in Iron Age Israel at Tell en-Nasbeh. This study stressed the use of households per site and residents per household to calculate an accurate population density and total.⁷³ The method advocated in the study of Tell en-Nasbeh involves calculating the number of houses per hectare through excavation of the site, then factoring in an estimated number of people per household and the overall size of the site. Zorn notes that this

⁷² Dynastic Egypt, and even specifically New Kingdom Egypt, often had extremely dense residential sections in the settlements and an insulae design for the residential sections (Uphill 2001: 22, 28, 38, 46). Many of these settlements, sometimes referred to as workmen's towns or villages, were occupied by people from the Levant, who may have brought their architectural traditions to Egypt.

⁷³ London proposed that using site size was more suitable than using house size because of "the limited number of individual sites where houses have been excavated" (London 1992: 71). However, compiling an average house size for the period, utilized with household population and city layout, all period specific, produces a much more accurate and reliable estimate than assigning a static population density coefficient to an overall site size (which may vary widely according to measurement criteria).

method is useful for micro-level studies on an individual settlement level, but three weaknesses are pointed out: determining the size of the average family, determining the number of families that occupy a residential building, and factoring in the percentage of the site dedicated to housing rather than public buildings, streets, walls, and any other non-habitable spaces (Zorn 1994: 32-33). Also noted is the importance of the interaction between a city wall or boundaries of a settlement and the population density. It is argued that settlement beyond the walls or traditional boundaries of a site would only occur during times of security and peace, thus walled settlements or otherwise geographically bounded settlements are more likely to have a higher population density than unwalled or geographically unbounded settlements (Zorn 1994: 33, 41). This practice would influence city inhabitants to build up rather than out, and indicates the necessity for multi-story houses in Canaan. The study at Tell en-Nasbeh notes that because it is usually impossible to obtain data about an entirely exposed layer of a site, information about the site relating to residential percentage and housing density must be extrapolated from a sample, then multiplied by the estimated number of people per family or household to obtain an estimate for the population of the site (Zorn 1994: 34-35). Most sites have a very small percentage of the Late Bronze Age city exposed, but there is enough composite data from many sites to extrapolate average house size, loss due to streets and walls, and average residential percentage of the site. In the case of Nasbeh, 23 buildings were found in an area of about 0.16 hectares, yielding 144 buildings per hectare—more than twice the density that Shiloh uses for another demographic study on the Iron Age (Zorn 1994: 37). Thus, the excavation data suggests a much higher density than previous studies in the region have used. Second stories are also mentioned, and the drastic impact on total population of a site that houses with a second story would have (Zorn 1994: 38, 40). This is a vital part of demographic analysis and calculation that has been ignored in previous studies of the Bronze Age in Canaan. Another important aspect that is almost always covered by guessing or using modern ethnographic studies is family size in a particular ancient time period and region. Zorn suggests that to “resolve this dilemma we need a broad study of walled, premodern Middle Eastern towns and cities where the total number of houses and population are known, and the percentage of houses that contained courtyards and

second stories can be determined” (Zorn 1994: 41). However, this proposal would not solve the problem, since Late Bronze Age Canaan and the “premodern” Middle East are divided by culture, ethnicity, technology, and over three millennia. The only reliable source for estimating family sizes in Late Bronze Age Canaan is by examining ancient documents from the period that convey information on this issue. Finally, after going through all of the data, Zorn calculates that the density coefficient at the town would have been between 470 and 590 in Stratum 3C—about two to three times as high as the density coefficients used in previous studies on the Middle and Late Bronze Ages (Zorn 1994: 44). Because of the similarity in material culture and technology, a shared geography, and close proximity in time, these estimated population densities may be similar to that of many sites in Late Bronze Age Canaan.

6.4 NEW COMPREHENSIVE METHOD FOR ESTIMATING ANCIENT POPULATION

Because other techniques, such as multiplying total site area by a constant density coefficient derived from ethnographic studies of modern villages and cities, have been found to be lacking for an accurate population estimate of Late Bronze Canaan, the present study has developed a specific formula for use on the settlements of Late Bronze Age Canaan and additional methodology for estimating the nomadic regions. The details on which to base the population estimate for a specific site will vary slightly according to the available data at each site, but will conform to the established technique as much as possible or use averages for Late Bronze Age Canaan. For sites which have been excavated or surveyed extensively enough to discern the approximate size of dwellings and the area of the residential buildings, the calculations for total population will be primarily based upon the formula developed by a synthesis of past methodologies and new modifications and additions by this study.

The methodology established by the author, based on a study of previous techniques and new innovations, involves determining five factors to estimate an approximate population for any given site where sufficient archaeological data exists:

1. Total area of the site
2. Residential area or percentage of the site

3. Average family and household size
4. Average area covered by a block or insula of houses
5. Population in religious and administrative districts

This is accomplished through the consultation of ancient epigraphic sources which indicate the average size of a family and household in the Late Bronze Age Levant, excavations and surveys plotting the average house size, determination of the total area of the site as defined by both architectural remains and ceramic distribution, calculating the residential area of each site based on Late Bronze sites in Canaan which have been most extensively excavated, calculation of the average area covered by a block or insula of houses by site examples and the addition of street area, and the addition of population in religious or administrative districts based upon ancient texts and parallels. Finally, the data is combined to come up with an approximate population for the site.

Alternatively, for sites which have insufficient excavation data—no discernible city wall boundaries, residential quarters, or clear house architecture—an estimate will be made for the site population based on:

1. Total site size derived from the presence and location LB materials
2. The use of regional averages for house insula sizes
3. The average percentage of sites occupied by residential quarters
4. Addition of average religious and administrative population, if warranted

These calculations can be checked against a variety of other proposed equations, including estimates of occupancy per person in various pre-industrial villages from around the world, which range from 5.3 m² to 10 m² of roofed space per person (Chamberlain 2006: 126). Although based on relatively modern data, the villages are pre-industrial. The equation at least gives a comparative range that may be useful for spotting errors or anomalies. Another equation by which to check the results is that proposed by Wiessner: $\text{area} = \text{constant} \times (\text{population})^b$, where b is 2 for open camps, 1 for enclosed or defended villages, and $2/3$ for urban communities (Wiessner 1974: 349). In the context of Late Bronze Age Canaan, if applicable, this could translate to no

modification multiplier for cities or walled towns, but a multiplier of 0.67 applied to the population of an unbounded village. Narroll originally proposed a universal constant of approximately 10 m² of dwelling space per person that could apply loosely to any pre-industrial society (Narroll 1962: 587-89). Although there may be some validity to this viewpoint from an anthropological perspective, Narroll's space allowance was considered to be too great for urban and large settlements because his data was primarily taken from rural villages and settlements under 5,000 residents (Kolb 1985: 583, 590). The average calculated by Narroll actually had wide variance based on the type of settlement—camp, village, city—and thus is only the most broad average of living space. As a refinement of Narroll's theory, and applied to sedentary situations with roofed living space, it has been argued that a general, worldwide constant for dwelling floor space per person lies somewhere between 4.7 and 7.5 square meters per person with an average of about 6 square meters per person (Brown 1987:1-49; Kolb 1985: 590). This is another general figure that can be used as a secondary check to establish higher and lower boundaries of possibility, but not as a primary method for calculating an accurate population estimate for settlements in Late Bronze Age Canaan.

First, the total site size is determined by previous excavations and surveys, or by independent survey or satellite imagery if no other data is available. For sites with few areas that have exposed Late Bronze occupation, a hypothetical Late Bronze Age city boundary is drawn based on the locations of the exposed Late Bronze Age areas or, as a last resort, based on boundaries of the city known from closely related ancient periods such as the Middle Bronze Age or Iron Age. A margin of error should be acknowledged especially for sites that do not have clear boundaries due to erosion, construction, or other events that obscure the boundaries. Then, the size of the non-residential district(s) will be subtracted from the total site size to obtain the total residential area. Massive fortifications that consume significant portions of the site will also be subtracted (i.e. Broshi and Gophna 1986: 87). For sites that have not been excavated or have not been excavated extensively enough, an average percentage acquired through data from sites in the Late Bronze Age southern Levant that have distinguishable residential and non-residential areas will be used. At Ugarit, the residential sections of the site made up approximately 72.5% of the total site area, but sites in Canaan appear to have had a

higher residential area site percentage (Garr 1987:35). Second, the total residential area is divided by the size of an average block or insula of adjacent houses and the surrounding streets to obtain the number of residential “blocks” or insulae that would fit into the site. If an individual settlement has enough excavation data to formulate an average residential insula size, that specific data is used. Otherwise, an average insula size is used from excavated residential districts at other sites in Late Bronze Age Canaan. Although there was obviously variation between houses and city layouts in Late Bronze Age Canaan, the size variation between normal houses appears to be minor and the city layouts appear similar; thus a reliable average from excavated sites can be utilized for sites with limited data (Wright 1985: 43-58; Ben-Dov 1992: 99-104; Holladay 1997: 94-114; Daviau 1993: 219-436). The proposed average ground area occupied by a single housing unit in Late Bronze Age Canaan is approximately 120 m² (cf. Chapter 2). Next, the average family size for the area is estimated, based primarily on epigraphic sources from the Late Bronze Age Levantine cities and regions of Ugarit and Emar, and supplemented with demographic information about Canaan in the Late Bronze Age from the Amarna Letters. Previous demographic studies have hypothesized ancient household size generally in a range of 3 to 7 people (Hassan 1981: 73). This hypothesis was checked against the epigraphic sources from the Late Bronze Age Levant and found to be within range of the nuclear family size. Based on textual data, the average nuclear family size for Canaan appears to have been approximately 6 to 7 people, with a proposed average of 12 total people in a household including servants and extended family (cf. Chapter 3). The average household size is multiplied by the number of houses in a block or insula, then multiplied by the number of residential insulae that would fit in the residential section of a settlement. Added to this, based on each site, is an estimate for the population of palaces or temples in the public, ceremonial, or administrative quarters. Although these sections of the site were likely much less densely populated, they were not completely devoid of habitation and should be factored into the overall total of an ancient settlement. In addition, garrisons are mentioned many times in the Amarna Letters and may be added onto the total of certain cities. The end result will be as precise an estimation of population as is possible for any given site with an approximately known total area and non-residential area. The

equation can be summarized as (Total Site – Non Residential) / Insula Size x (Houses per insula x Family or Household Size) + (Population of Temples, Palaces, Garrison) x Urban/Rural multiplier = Total Population Estimate of a specific settlement.

6.5 TEXTUAL INDICATORS OF POPULATION IN LATE BRONZE AGE CANAAN

Several ancient texts describing Late Bronze Age Canaan give general clues about the size of the population through the mention of specific numbers of slaves, soldiers, and plunder. Abdi-Heba of Jerusalem sent as gifts to the Pharaoh prisoners, porters, and perhaps 5,000 slaves (Moran 1992: EA 287: 53–59). Although there is a lacuna, the 5,000 may refer to slaves since it sits between two other designations of people—prisoners and porters—and slaves from Canaan are often taken by the Pharaoh or sent to the Pharaoh. If these are 5,000 slaves that Abdi-Heba is sending, it indicates a substantial population in the Jerusalem area. A letter from Baaluya in Amurru describes a massive army that is approaching from the north, containing an alleged 90,000 infantry (Moran 1992: EA 170: 19-35). If this figure is accurate, it suggests a significantly larger population for the eastern Mediterranean as a whole, and Canaan as a subset of that, than has been estimated in previous studies on the Bronze Age. It is possible that the number could have been erroneous or an exaggeration, but even if reduced by a factor of ten, the number would still be quite large for a single military force in the region at 9,000 infantry. This still indicates the existence of massive army sizes, and by relation, the possibility of populations in the hundreds of thousands for separate regions in the eastern Mediterranean. Additionally, if the leader of this army thought sending a large force such as this into Canaan, then it may be deduced that there would be significant resistance in Canaan through both population and fortification in cities. The spoil of Megiddo after the victory under Thutmose III records 924 chariots, 200 suits of armor, and 507 bows looted by the Egyptians (Breasted 1906a: 187). Since each chariot required at least two soldiers to operate and some of the chariots were likely destroyed in the battle, there would have been at least approximately 2,000 men fighting in the Megiddo chariot core.⁷⁴ A supply chain could have required even more

⁷⁴ The presence of nearly 1,000 chariots on the side of Megiddo brings up the question as to where all of the chariots were stored during times of peace. Since there would not have typically been sufficient space in most cities to store

men as part of the chariot core, as would the addition of a third man in the chariot as a secondary archer or melee soldier. The 200 suits of armor indicate an infantry of at least 200, while the 507 bows indicate over 500 archers. If any of the armor or bows were broken in the battle and therefore not looted and accounted for by the Egyptians, the army of Megiddo would have been even larger. Together, the army of Megiddo would have included 2,700 men or more. As men of fighting age and condition would only be a small segment of the population, the military spoil from Megiddo implies a total population of well over 10,000 for the city-state. Additionally, the records of Thutmose III about plunder from Yanoam, Nuges, and Herenkeru record the taking of 1,796 male and female slaves and their children (Breasted 1906a: 188). If the slaves only had an adult to child ratio of 1:2, as free families in the southern Levant typically had⁷⁵, the slaves would have numbered approximately 5,400. This was a total for three towns, but also may not have included every slave that lived there before the attack. If it was inclusive of all slaves, it still suggests an average of 1,800 slaves living in each of the three towns, and by inference town populations of several thousand. The Memphis Stele of Amenhotep II records the plunder of approximately 100,000 people from Canaan, including *ʿapiru* and *shasu* and 13,500 weapons of war (Hallo and Younger 2000: 22). The first number, the total number of people taken from Canaan, indicates that the population of Canaan much larger than a total of 90,000 or 100,000—an amount supposedly taken captive. Even if this was a false claim “census” type of figure rather than what Amenhotep II actually took back to Egypt, it still demonstrates that Canaan would have had, at least in the Egyptian view, well over 100,000 people total. The 13,500 weapons accounted for as part of the loot even indicate a large population, as weapon owners or users would only be a small percentage of the population. Although none of these documents record a town or region census, as a composite they appear to indicate that many towns in Canaan had several thousand or more inhabitants, there was a substantial slave population, at least some cities had large armies, and that the total population of the region exceeded 100,000 people.

many chariots, they may have been stored off site at nearby walled outposts or storage areas. It is probable that these storage areas were then settled in later periods or had the stones robbed for later settlement, leaving little archaeological evidence behind of their existence.

⁷⁵ See Chapter 3 Family Size and Household Size in Late Bronze Age Canaan for an analysis of nuclear family size from Late Bronze Age texts.

From texts recovered at Alalakh, demographic data for the northern Levant in the Late Bronze Age provides some additional information about population in the region of the Levant during the period. One list, ATT/8/240, gives the number of houses in 22 different villages near Alalakh; the number of houses mentioned in a village varies from 3 to 74 (Wiseman 1953: 11). On some tablets, details are given which specify the amount of warriors under the control of a leader in the countryside. One of the tablets (183) records that a particular leader had 1,436 warriors under his control (Wiseman 1953: 11). This is suggestive that even in the countryside there was a relatively substantial population. 53 census tablets give names of some of the inhabitants of 14 villages under the control of Alalakh at the end of Late Bronze I (Wiseman 1953: 10). Many tablets name the leaders of the households in several settlements including, among others, the as yet unidentified towns of Suharuwa and Alime—which according to the records contained 85 and 165 names, respectively (Wiseman 1953: 64-65). Several of the recorded towns or villages were much smaller, while others varied from slightly smaller to comparatively sized. Neither Suharuwa or Alime have been archaeologically identified, and they are not likely to be large in surface area or significance. Yet, if they contained 165 and 85 households, with an average household size of 12, the towns would have had an approximate population of 1,000 and 2,000 people. This sizeable town or village population for satellite settlements in the area of Alalakh indicates that satellite towns and villages in the Late Bronze Age Levant sometimes contained significant populations of 1,000 or more; the major urban centers were not the only place that large percentages of the population resided. In other census tablets, numbers of the actual houses in a particular town or village are listed; the total number of houses throughout the various villages is suggestive of a significant population living in settlements outside of the major urban centers (Wiseman 1953: 72-75). Although these settlements are outside the region of Canaan and cannot be factored into the total population of that region, the data is relevant because it further suggests significant populations outside of the major urban centers and indicates a large overall population for the Levant.

6.6 EXAMPLE SETTLEMENTS OF CANAAN

In order to derive figures to be projected onto Late Bronze Age sites in Canaan that have not been sufficiently excavated to determine their approximate residential, public, administrative, and religious site percentages, example settlements may be examined and utilized to determine the average percentage of a site occupied by residential structures, open or public space, administrative buildings, or religious buildings. Two settlement site types are the most important for distinguishing and estimating population—cities (or towns) and villages.⁷⁶ Cities and towns, often bounded by fortifications or geography, are more likely to have a higher density than villages and rural sites, which may be much less bounded and thus less limited in their expansion, allowing a lower density to be maintained with population growth or the addition of architecture.

6.6.1 Example Cities and Towns of Canaan

For cities and towns, the Late Bronze Age remains that have been excavated at Hazor, Laish, Megiddo, Shechem, Tell el-Ajjul, Beth-Shemesh, and Beth-Shean give insight into approximate settlement layout and density.

At Hazor, excavations of the Late Bronze Age levels suggest that a while large religious or administrative structures certainly existed, the total site area occupied by public, administrative, or religious space was mostly centered on the acropolis except for 2 gate areas, 3 temples, and the main road. Like other large settlements of the Late Bronze Age, Hazor appears to have a dense architectural layout, especially in residential areas (Yadin et al. 1956: Plate CCVIII, CCIX, CCX). The temples in the lower city ranged in size from a tiny 27 m² for the Area C temple, to a massive complex approaching 1000 m² in Area H, to a more average sized 324 m² for the Area F temple (Yadin 1972: 67, 75, 100). Together, these temples occupy less than 0.14 hectares of

⁷⁶ Cities and towns have been defined earlier as sites of 2 hectares or more, while villages and rural sites occupy less than 2 hectares. The settlement types may be further divided: city = site of authority or political power, town = 2 or more hectare satellite settlement, village = 0.5 hectares to 2 hectares, rural site or farmstead = less than 0.5 hectares, often with evidence of very limited settlement. Additional types of sites include cultic (evidence of only or primarily cultic activity), outpost (fortifications but not a normal residential settlement), seasonal/nomadic (residence only part of the year). The seasonal settlement in which permanent structures existed may or may not have existed in Late Bronze Age Canaan, but types of nomadic sites, though extremely difficult to detect through normal survey methodology, must have existed according to the ancient textual records concerning nomads.

the site. Even if we assume double this number of temples in the lower city, less than 0.30 hectares are occupied by temples. In general, temples in Late Bronze Age Canaan were not extremely large structures, and the massive temples at Hazor are the in the minority rather than the standard (Wright 1971: 24-31). For example, the temple designated Building 50 at Tell Abu Hawam occupied approximately 83 m² (Mazar 1992: 172-173). Thus, the amount of space taken by religious structures and areas in Late Bronze Age Canaan was not a large percentage of the typical settlement. The Area K gate, counting additional open space inside the city around the gate area, probably occupied less than 500 m² (Yadin 1972: Fig 14). The area P gate is the only other major gate known in the lower city. Thus, the main gates may have occupied approximately 0.1 hectares of area. The entire site of Hazor is calculated at approximately 91 hectares total, but with the reduction of the rampart the remaining site covers a maximum of 73 hectares, or a nearly 20% reduction (Yadin 1972: 15-17; GIS Google Earth Pro). Additionally, one must account for the area of the acropolis base, bringing the total settled area to approximately 69 hectares, and after subtracting the entire acropolis from the possible residential area of the site, 63 hectares are left with which to still remove the area of temples, the main road, and gate areas, or slightly over 69% of the total site area (Yadin 1972: 15-17). If the two main city gate areas are assigned a generous 500 m² for 0.1 hectares total, based also on analogous studies from Laish and Megiddo, the temples are assigned a total of 0.3 hectares of area, and finally the main road is added in at 7 meters wide, running the length of the lower city and branching to the two main gates, perhaps an additional approximate 1.1 hectares can be removed for a total of 1.5 hectares of space reserved for public, administrative, and religious purposes. This leaves the city of Hazor with approximately 61.5 hectares for the residential quarter, or slightly over 88% of the occupied site area. These calculations suggest that the more surface area a city in Late Bronze Age Canaan covered, the percentage of the site used for residences would rise.

At Tel Dan, ancient Laish, Area AB inside the gate had a stone pavement and small open area. However, this open area was a miniscule percentage of the site—probably around 500 m², which is similar to the gate areas at Hazor and Megiddo (Ben-Dov 2011: 12-13, Plan 1). Area B contained a gate, road, presumed public structures,

and houses (Ben-Dov 2011: 15). Area B1 appears to be a domestic or residential area (Ben-Dov 2011: 15-26). Area K supposedly contained a temple, but artifacts found within actually demonstrate that this was a domestic structure (Ben-Dov 2011: 126, 131-134). Additionally, Area M and Area Y both appear to be residential in nature (Ben-Dov 2011: 177, 188-190). Thus, analysis of Tel Dan in the Late Bronze Age suggests that the majority of the city in the Late Bronze Age was occupied by domestic structures rather than palaces, temples, or large open spaces. Only a hypothesis can be made as to the percentage of the residential quarter(s) of the site, but 80% to 90% appears plausible from the available data.

The Ruler's Palace and LB gate area during the Late Bronze Age at Megiddo may have occupied approximately a 90 meter by 70 meter area (630 m² surface area) for public space, or possibly even up to 1,000 m² for the entire complex (Ussishkin 2000: Fig 5.1; Oren 1992: 106). Relative to the overall size of the site, this area is minute. Even if one hypothesizes multiple temples in addition to the palace—which is probable, but not yet proven—and the addition of an extremely large road running all through the site, the residential quarters may have occupied close to 90% of the site area. Excavations of Late Bronze Age residential areas at Megiddo also display densely packed buildings in the city and *insulae* type residential structures, further demonstrating the compact nature of cities and towns in Late Bronze Age Canaan (Ussishkin 2000: Fig 5.17).

The largest temple and two gates at Shechem give further insight into Late Bronze Age architecture and city layout.⁷⁷ The Fortress Temple at Shechem occupied approximately 563 m² of space, which appears to be consistent with the surface area of most of the largest public structures at Late Bronze Age cities, such as temple, palace, and gate complexes (Milson 1987: 97). The East Gate at Shechem, not counting additional open area behind the gate, occupied approximately 240 m² of surface area (Milson 1987: 100). The North-West Gate occupied slightly more surface area—approximately 293 m² (Milson 1987: 102). With the addition of open area behind the gates, their total complex area may have been similar to the total gate complex

⁷⁷ Although these structures were originally built in the Middle Bronze Age, they were remodeled and reused in the Late Bronze Age.

measurements of other Late Bronze Age cities at around 400 m² to 500 m². If the areas of Temple 7300 and a hypothetical palace are added, plus a two main 7 meter wide crossing streets running the length of the site, the total surface area occupied by public, administrative, and religious space may have been at most approximately 5,000 m² out of a total 6 hectares for the mound, which accounts for less than 10% of the total site area (Campbell 1993: 1345-1351). Thus, up to nearly 90% of the site area available for use by the normal populace appears to have also been possible at Shechem. If a lower city existed during the Late Bronze Age, then the proportion may have even been slightly higher.

The Late Bronze Age levels of Tell el-Ajjul, Beth-Shemesh, and Beth-Shean, while not as useful for calculating distinct sections of a Late Bronze Age settlement, give insight into the density of cities and towns during this period. All three of these settlements demonstrate the extreme density of cities in Canaan during the Late Bronze Age with layouts exhibiting densely packed structures—contiguous housing complexes in *insulae* style—in addition to an apparent lack of space within the city (Mazar and Mullins 2007: Fig 1.7; Wright 1985: figure 59, figure 60; Wright 1971: Fig 2; Petrie 1931: Plate LIV). Excavations and analyses of multiple Late Bronze Age cities and towns in Canaan suggest that large open areas did not exist inside the cities excepting gate, temple, palace, and main street areas.⁷⁸

6.6.2 Example Villages of Canaan

For villages and rural settlements of the Late Bronze Age, less data is available with which to estimate the precise layout of the settlements and specific density. However, a few examples serve to illuminate the general composition of these smaller settlements in Canaan.

At Tel Yin'am, excavations demonstrate that villages in Late Bronze Age Canaan often may not have contained a temple or exclusive cultic building, and had a very dense residential structure (Liebowitz 2003: 3). The excavation of the Late Bronze Age

⁷⁸ Parallels from Hyksos period Tell el-Dab'a also suggest a Middle and Late Bronze Age urban layout trend originating in Canaan which utilized rows of *insulae* style housing, streets approximately 2.5m wide, multi-level houses with up to about 125 m² of ground floor surface area, and generally a very compact settlement (Bietak 2010: 17-19).

village settlement at Tell Abu Hawam also demonstrated a density of structures similar to that found in much larger settlements (Hamilton 1935: Plate XI). If Middle Bronze Age villages are relevant to the general layout of Late Bronze Age villages—which is plausible considering the general continuation of material culture and architecture from the Middle Bronze Age to the Late Bronze Age—then additional evidence comes from villages of this period that the sites were relatively dense (Faust 2005: Figure 2, Figure 5, Figure 6, Figure 7). While suggested temple structures have supposedly been found at some Middle Bronze Age villages, many of these buildings are not clearly temples and none take up a significant amount of space (Faust 2005: 112). It appears that temples may have occasionally existed in Late Bronze Age villages, but were much more typical of towns and cities. Thus, village size settlements in Canaan of the Late Bronze Age appear to have been primarily residential, and specifically composed of a higher percentage of residential buildings than towns or cities of the Late Bronze Age, while also maintaining a relatively high density of structures within the settlement itself. This suggests that the overall population density of many villages during this period may not have been substantially lower than cities and towns. Smaller rural sites, such as farmsteads, are much more difficult to calculate, but likely only contained a maximum of a few nuclear families.

6.6.3 Residential Proportions of Sites in Late Bronze Age Canaan

Thus, settlements in Late Bronze Age Canaan appear to have been primarily occupied by residences of the general population, rather than multiple palaces, temples, and massive city squares. In order to avoid overestimating the population of settlements, a figure of 85% of the site area (after the subtraction of ramparts or massive fortifications which may have accounted for up to 20% of the total site area but can often be individually measured) for residential districts will be used on sites of 10 hectares and above, while a figure of 80% will be used on sites under 10 hectares to allow for lower structural density.⁷⁹ All sites built on a mound which have included the

⁷⁹ London related that previous research had suggested residential space to occupy 70% to 75% of the site area in the Bronze and Iron Ages, primarily based on smaller towns (London 1992: 73). However, the excavated Late Bronze Age sites in Canaan appear to have a slightly higher residential percentage. Interestingly, once the fortification

mound in the publication measurement will be reduced by an average of 10%, unless the sides of the mound were clearly built upon in the Late Bronze Age. The additional use of an unbounded village multiplier of 0.67 for less than 2 hectare sites appearing to be unwallled or unbounded villages should return estimates for small satellite or rural settlements with a plausible population density. Unwallled sites less than 0.5 hectares are considered “farmsteads” in which an estimated 1 to 3 nuclear families may have lived, and thus an average figure of 15 people will be used for these sites. Wallled sites less than 0.5 hectares are considered “outposts” in which a small military garrison may have been stationed along with some civilians, or if near a city, chariots may have also been stored. An average figure of 50 people will be used for outposts, recognizing that the range may have varied widely depending on the size of the outpost, its importance, and the military power of the region.⁸⁰ While the area outside of the walls may have served as commercial and agricultural space, and possibly even as residential space, these “lower cities” have rarely been noticed or excavated (London 1992: 71). Thus, only at those sites where a lower city is discernible will the additional space be used to calculate the population of the settlement.

6.7 TEST CASE CITY

With a detailed methodology described and averages for family household size and housing unit size determined, it is possible to apply the methods to an example site for testing. Because Ugarit has been thoroughly studied and population estimates already exist for comparison and evaluation, this city will be used as a test case. However, Ugarit is not considered to be a city within Canaan, and therefore will not be a part of the overall dataset of the demographic study of Late Bronze Age Canaan. Besides its location in the northern Levant, outside the geographical region of Canaan, the primary difference between Ugarit and cities or towns in Canaan is the position of Ugarit as the capital of a kingdom. Due to this status, Ugarit appears to have been filled

reduction is taken into account for cities which used ramparts or built only on the top of the mound, the overall site area occupied by residences appears to be closer to 75% than 85%.

⁸⁰ Some of these small wallled sites near cities may have been storage areas for chariots, and in this case may have had only a few guards stationed to prevent sabotage or theft. However, it is likely that little evidence remains for any chariot storage enclosures due to reuse of stones and later settlement masking the non-settlement status of this type of site during the Late Bronze Age.

with a much greater number of palaces and temples than the average city or town in Canaan, which would have ruled over a smaller area. However, because of the similarity in culture and geographical proximity, the Late Bronze Age city at Ugarit can be accurately calculated using the methods and averages from the Late Bronze Age southern Levant. Thus, it is useful for testing the methodology developed for Late Bronze Age Canaan.

Site: Ugarit (Ras Shamra)

Location: Northern Levant. 35.602°N 35.782°E

Overall site size: 25 hectares

Site division: 72.5% residential (18.13 hectares), 8.6% palace, 18.9% religious/public

Fortification reduction: None (no massive rampart or extremely thick walls)

Average housing unit: 120 m² ground space

Average persons per housing unit: 12

Average 3 household insula size (walls and streets included): 477 m² ground space

Total insulae in residential district: 380 (1140 housing units)

Estimated total residential population: 13,680

Palace population: 270 ?

Garrison population: 400 ?

Temple population: 15 ?

Estimated total site population: 14,350 (rounded from 14,375)

Overall site population density: 574 people per hectare

RAS SHAMRA - OUGARIT

Plan schématique du tell (juin 2003)



Figure 6.1 Overhead Plan of Ugarit (<http://www.ras-shamra.ougarit.mom.fr/>)

According to the earliest measurements, Ugarit probably originally occupied at least 25 hectares, but decreasing measurement figures suggest that the site has slightly shrunk over the last century (Garr 1987: 34, 41). This reduction in size may have been due to erosion since the initial surveys and excavations. According to an analysis of the different quarters of the site, Ugarit was comprised of approximately 72.5% residential, 8.6% palace, and 18.9% other space (Garr 1987: 36). No significant city walls or fortifications exist which need to be further deducted. An average house or housing unit would occupy approximately 120 m² of ground space and give 115 m² of interior roofed dwelling space allowing approximately 10 m² interior roofed space per person, while an insula of three houses with surrounding residential streets would occupy approximately 477 m² of ground space.⁸¹ An average of 12 people per housing unit would amount to 36 people per 477 m² of ground area in the residential district. Multiplying 72.5%, the percentage of the city occupied by residences, by 25 hectares total size area results in 18.13 hectares of residential area. The 18.13 hectares of residential area divided by 477 m² per insulae results in approximately 364 insulae in the residential district. 380 insulae, or 1140 housing units at 12 people per housing unit, gives a residential population of 13,680. If there were at least five palaces at Ugarit, each with a royal or elite nuclear family of approximately 18 members, plus at least two times the equivalent amount of servants, there would have been 270 people occupying these palaces which covered approximately 2.15 hectares. Additionally, based on garrison sizes in the Amarna Letters and the known presence of chariot warriors at Ugarit, there may have been a garrison of at least 400 soldiers stationed in a public building. The temples of Ba'al, Dagon, and the high priest's house may have housed an additional 15 priests. This brings the non-residential population to approximately 695, and the total city population to approximately 14,350 (rounded down from 14,375). Using a 3 hectare larger total site size (25 instead of 22 hectares), the total estimate is only slightly higher than those derived using equations related to rooms for a 22 hectare site, and not drastically higher than a person per floor area estimate when adjusting for two storey

⁸¹ 120 m² ground surface area per house. On average, 3 sides of the house would have been bordered by a 2 meter wide average street, with 3 houses per insula. A 10.96 meter wall (square root of average house size) x 3 = 32.86 meters lengthwise + 4 meters of street (2 meters on each side) = 36.86 meters lengthwise total for the insula. 10.96 meters plus 2 meters of street = 12.96 meters wide. Thus, an average insula equals 36.86 meters by 12.95 meters for approximately 477 m² of space occupied by each residential insula unit of 3 houses, including surrounding streets.

houses (Garr 1987: 39-40).⁸² Overall, the site would have a population density of about 550 people per hectare, but this number is somewhat arbitrary because of the division of the site into different quarters with different densities—in particular the residential versus administrative and religious quarters. However, for sake of comparison this estimated overall site population density of 550 per hectare is very similar to estimates of ancient settlements used by Uphill (625 per hectare), Butzer (550 per hectare), Postgate (450 or more per hectare), and Zorn (470 to 590 per hectare); all of these figures suggest that cities of the Ancient Near East in various regions and periods may have supported population densities around 500-600 people per hectare, and that a similar number for Late Bronze Age Canaan is plausible (Uphill 1988: 15; Butzer 1976: 102; Postgate 1994: 62; Zorn 1994: 44).

Although a few settlements in Late Bronze Age Canaan are able to be estimated in more site specific detail by closely analyzing space taken up by palaces, temples, and fortification walls, and the specifics of the insula in a particular site, this test case of Ugarit gives a general model for how each population estimate for the settlements in Canaan will be done. Typically, due to the lack of architectural exposure of Late Bronze Age levels, averages from the most exemplary sites in Canaan must be used in conjunction with the approximate Late Bronze Age city surface area. While it is recognized that the use of averages cannot replace detailed site specific data, this is the only possible method due to the limited availability of information for Late Bronze Age settlements. It is hypothesized that the application of averages to all sites, derived from Late Bronze Age examples rather than analogy from other periods or regions, will allow the overall calculations for site population to be relatively accurate. Therefore, standard equations can be used for cities and towns or villages and rural sites to determine the approximate total settlement population and overall population density.

⁸² Adjusting the 1 person per 10 m² total floor area to a 25 hectare site and accounting for an upper floor would bring the estimate to approximately 13,000.

CHAPTER 7

METHODOLOGY FOR ESTIMATING THE NOMADIC POPULATION OF CANAAN

7.1 THE NOMADIC POPULATION OF CANAAN IN THE LATE BRONZE AGE

In order to arrive at a total population estimate for the entire region of Canaan, the population for all known settlement sites will be added together then supplemented with an estimate for the nomadic population in the remaining areas of the region not covered by permanent settlements. A nomadic culture may be broadly defined as a mobile group that does not participate in or does not emphasize agricultural cultivation and is a type of lifestyle often associated with hunter-gatherer or nomadic pastoralist societies (Khazanov 2009: 119-120). The word “nomad” originally comes from Greek νομαδικός [nomadikos], and was associated with a herdsman’s life, pastoral, roving, and wandering (Liddell and Scott 1996: 1178).

Beginning in the previous period, the Middle Bronze Age, there are texts which appear to describe the existence of “extraurban” people, or even a nomadic segment of society in Canaan and the nearby regions (Rosen 1992: 81; Broshi and Gophna 1986: 74). The Amarna Letters and 18th Dynasty Egyptian texts repeatedly mention nomadic people such as *shasu*, *sutu*, and in some cases possibly *‘apiru*, living in Canaan during the Late Bronze Age; *shasu* is interpreted as a general term for nomadic groups on the peripheral areas of Canaan, while *sutu* is the equivalent generic Akkadian term for nomad (Levy 2009: 157; Na’aman 2005: 91).⁸³ It is acknowledged that archaeologically these groups are difficult to trace, as most “evidence for enclosed nomadism in the southern Levant is textual. References to groups such as the Apiru...a social or class designation, and the Shasu, either a class designation or an ethnic attribution,” are viewed as the nomads of Canaan in the Late Bronze Age (Rosen 2009: 64). The *shasu* are even referred to as tent-dwellers in Papyrus Harris I, 76: 9-10, which further suggests the possibility of a mobile lifestyle (Redford 1992: 278; Givon 1971: 135).

⁸³ *‘apiru* is normally viewed as a socioeconomic class term rather than an ethnic term, while *shasu* and *sutu* mean nomad. While Ward proposes that the *shasu* were a social class that included nomadic, Bedouin, and urban people instead of strictly wanderers or nomads, other scholars do not concur and the evidence for this proposal is lacking (Ward 1972: 56).

Because of the various textual references, the term most frequently used, *shasu*, known from Egyptian sources of the 18th Dynasty through the Third Intermediate Period, is typically interpreted as referring to a social group of nomads in the southern Levant (Levy, Adams, and Muniz 2004: 65-66). A common understanding of the period proposes that “the Egyptian military record warrant[s] the assumption that significant numbers of *shasu* pastoralists ranged LBA Canaan. Direct archaeological data is harder to come by” (Hopkins 1993: 210). Mention of 15,200 living *shasu* nomads and 3,600 ‘*apiru* (who may or may not have been nomads due to the scope of this socioeconomic term) in the Memphis Stele of Amenhotep II as captives suggests a number in the tens of thousands for the total nomadic population of Late Bronze Age Canaan (Hallo and Younger 2000: 22). Regardless of the complete reliability of the stele in either accuracy of the numbers or truth of the capture, the large numbers mentioned do indicate a substantial population of nomads. Further, because nomads are mentioned often in texts from the period, especially in 18th and 19th Dynasty military texts, they likely made up a noticeable portion of the regional population of Canaan (e.g. Breasted 1906a: 211; Breasted 1906b: 46, 53, 144). This suggests that the total nomadic population numbered well over 10,000 during the Late Bronze Age. The opposite view proposes that “there had been few, if any, pure pastoral nomads in the Near East until the first millennium B.C.” due to the hypothesis that most had to supplement domesticated animals with cultivation and that pack animals would have been required (Khazanov 2009: 124). However, these requirements for a strictly pastoral type of nomadic culture in the Late Bronze Age, not a hunter-gatherer or hybrid nomadic culture, are only true if pack animals such as camels or donkeys were not domesticated, or if traveling long distances with heavy possessions was necessary, or if food was not supplemented by gathering of wild produce. Nomadism, both of the pastoral type and the hunter-gather type, was at least possible in Late Bronze Age Canaan. Further, since texts of the period do indicate mobile groups, some which clearly had domesticated animals and some which used tents, the presence of nomads in the region appears not only plausible but very likely. Because, according to several ancient sources, a nomadic population was present in the region, and additionally the presence of nomads in Canaan is logical and plausible, this segment of the population must be factored into a

demographic study of the region and into the overall figure for the region during the Late Bronze Age.

Binford plots the population density of hunter-gatherer groups, ranging to a maximum of 3 people per square kilometer (Binford 2001: 425-426). After surpassing this population density, population pressure would force either migration, population reduction, or transfer into a more sedentary society that would allow higher densities. According to this data, nomadic population density in Late Bronze Age Canaan should have been under 3 people per square kilometer, even in the most fertile and highly dense regions.⁸⁴ Comparative ethnographic data from multiple regions of the world is analyzed in the following discussion to calculate estimates for population densities of specific nomadic regions of Canaan.

Unfortunately, because of their lifestyle, the archaeological data for the nomadic groups of the Late Bronze Age is scarce and difficult to locate or discern. Some have argued that most of the evidence for nomads is not preserved in the archaeological record, as supposedly demonstrated by the example of the lack of material remains of Bedouin in the southern Levant during the 19th century (Finkelstein and Perevolotsky 1990: 67). However, it has been demonstrated that nomadic sites, both hunter-gatherer or pastoral nomads, and even the Bedouin, leave traceable but limited remains—small sites often less than 20 m² and only a few pottery sherds or lithic artifacts, and perhaps a hearth (Rosen 1992: 75, 80-81). Yet, it is recognized that these types of sites could be easily missed due to their small size, lack of significant architectural remains, coverage by vegetation, and destruction by later settlements (Rosen 1992: 76). Excluding the extremely harsh or arid regions where little vegetation grows and fewer settlements are built over time, locating and identifying these sites can be very difficult and highly unlikely, especially when one factors the techniques typically used to survey for sites or choose a site for excavation in more fertile and densely settled areas. Thus, archaeological material left behind by nomads exists, but it can be extremely difficult to locate and trace these groups archaeologically, especially in more settled regions.

⁸⁴ Although theoretically possible, it is unlikely that the nomadic population density in Canaan reached the maximum of 3 people per km², especially in the Late Bronze Age. Because of the presence of settlements throughout ancient times, the region as a whole does not appear to have ever been an area only occupied by nomads. Thus, the nomadic population density was likely much lower than 3 people per km².

For Canaan, it has been hypothesized that the combined period of the Middle and Late Bronze Ages saw “the rise of enclosed nomadism...wherein tribal groups lived in the interstices between the urban sites, with seasonal migrations beyond the settled zone” (Rosen 2009: 63).

Thus, it is necessary to use comparative data for an estimate. Further, because of the lack of archaeological data from nomadic groups of Late Bronze Age Canaan and the absence of specific censuses or other detailed population data about nomads in the region from ancient texts of the period, ethnographic parallels must be used. The population figure for the nomadic regions of Canaan will be primarily based upon studies of Native American Indian nomadic groups, Australian aboriginal tribes, African hunter-gatherer groups, and foraging land capacity, which may have a highly fluctuating residential density depending on the land available and the size of the community population (Chamberlain 2006: 128; Allen 1997: 145). These nomadic hunter-gatherer groups have the best available demographic data that allows the estimation of nomadic population density for various types of geographical regions relevant to Canaan.

7.2 CLIMATE, ENVIRONMENT, AND GEOGRAPHY

According to studies of ancient climate and geography, Late Bronze Age Canaan was similar to conditions of the modern period, allowing assumptions of current climatic regions to be utilized for estimating ancient nomadic population data. From approximately the Early Bronze Age until modern times, the climate of the region of Canaan has not changed significantly (Goldberg & Bar Yosef 1982: 404). The climatic conditions influence settlement, agriculture, and nomadic population densities. Another assessment indicated that landscape, climate, and soils of the Jordan Valley were essentially the same in the Late Bronze Age as they are currently (van der Kooij & Ibrahim 1989: 10). Thus, application of current climatic data and regional division for nomadic groups based upon differing climate and landscape zones—desert, coastal, valley, and highlands—can be assumed to be approximately the same for the Late Bronze Age as current times.

According to an ecological study, the region most similar to Canaan in the entire world is California (Naveh 1967: 445-459). Essentially, California is in many ways a

larger representation of Canaan. The similarities of the two regions include climate, rainfall, vegetation, and diverse geography. Each region has a western ocean coastal area, valleys, rivers, highlands, and desert areas in the south and east. Although the land area of California is approximately 10 times that of Late Bronze Age Canaan, the aforementioned similarities make it a useful region from which to draw ethnographic parallels for nomadic population densities. Used in conjunction with demographic studies of nomadic hunter-gatherer cultures in other regions, the data, especially from California, should give reasonably plausible population density estimates to utilize for Late Bronze Age Canaan.

7.3 SIZE OF NOMADIC FAMILIES AND GROUPS

Two nomadic tribes, the Ayas and the Boynuinceli in the Taurus mountain area of Turkey near Karakeci in the early 20th century may be useful for broad demographic comparison. Although there is no specific population density data, approximate family size and group size contributes relevant information. The Ayas had about 100 tents and a total population of 750, while the Boynuinceli had 200 to 300 tents with a theoretical population of 1500 to 2250 (Cribb 1991: 117). Thus, the average “household” size of these Turkish nomads was approximately 7.5 people per tent. The nomadic Basseri tribe of South Persia typically inhabited tents of 24 m² ground space, and an analysis of one camp revealed a group of 32 tents with an average of 5.7 people per tent (Barth 1961: 11-12). This places the average floor space per person at barely over 4 m² per person. However, enclosed nomadic dwelling space is not directly analogous to sedentary enclosed dwelling space. The population of each household typically consisted of a nuclear family composed of husband, wife, their children, and the occasional addition of a daughter-in-law and grandchildren or other close relatives (Barth 1961: 12). These tents, normally containing nuclear families, are very similar in nuclear family size to that of Late Bronze Age Canaan derived from ancient texts, averaging around 6 to 7 people per family without slaves and typically without extended

family.⁸⁵ The similarity in nuclear family size suggests that ethnographic comparisons of nomadic groups from similar geographical, climatic, and technological spheres may be useful for estimating the nomadic population of specific geographical regions of Canaan in the Late Bronze Age. Further, the tent size and tent group size may give insight into the demography of nomadic groups from the ancient Near East—that relatively large populations existed and had a high density, but likely were not in close proximity with many other groups. Thus, the overall regional density would have been very low in comparison to areas filled with permanent settlements. Notably, in Luri nomad camps, the population density was the same or even greater than that of sedentary villages in the region (Cribb 1991: 156). This indicates that ancient nomadic tent groups, though using relatively small camp sites, could have had significant total populations due to their density. Although, in a regional culture that contained a significant sedentary population, the nomadic population would have been merely a small percentage of the sedentary population.

7.4 OVERALL NOMADIC POPULATION DENSITIES FROM VARIOUS REGIONS

According to Hassan, the general population density for nomads and hunter-gatherers based on multiple studies may range from 0.01 to 1.0 people per square kilometer (Hassan 1978: 78). Binford, however, expands the range up to 3 people per square kilometer, at which point a change into sedentary culture is supposedly forced (Binford 2001: 425-426). This range is too broad to be useful for calculating an approximate nomadic population for Late Bronze Age Canaan. However, the bounds which it suggests may be applicable depending upon the type of region and climate in which the nomads live. Since Canaan, excluding the desert areas, was a generally fertile region with a warm climate, the expected population density may be towards the higher end of the scale. Yet, Canaan was also a region of sedentary settlement, which would suggest lower numbers and a lower overall density of nomads. More precise data relating to geographically and climatically specific estimates should be used, if possible.

⁸⁵ Additionally, the average Basseri nomadic household had 6-12 donkeys and approximately 100 adult sheep and goats (Barth 1961: 13). This data supports the records mentioning thousands of livestock belonging to nomads or even sedentary peoples from Late Bronze Age texts.

This nomad data would then be applicable to the nomadic regions of valleys, plains, coastal areas, and desert in Late Bronze Age Canaan.

The overall average population density for Aboriginal groups in Australia was estimated at approximately 0.03 people per square kilometers (Lee and Devore 1968: 190). For all of Nevada, a generally arid region, between 1861 and 1865, the Native American population density was between 0.03 and 0.024 people per square kilometers—nearly identical to the estimated overall population density for Aboriginal groups in Australia (Steward 1938: 48). At first, the general similarity between these population densities may appear to suggest that they are valid figures to use for a section of Late Bronze Age Canaan. However, since in pre-settlement times the densities of both the Australian Aboriginal groups and the Native American Indians would have been higher, and these regions are overall much more arid than Canaan, the population densities would be substantially lower and thus not directly relatable. As would be expected, river and plain areas have higher densities, while mountain and desert regions have lower densities. Similar population density results between studies of nomadic groups in different regions of the world may suggest that rough overall population density constants may exist for nomadic groups in similar geographic, climatic, and technological contexts, even if their religious and cultural practices differ. This means that the general population density data can be applicable to nomadic groups of Late Bronze Age Canaan. Yet, in comparison to the region of Canaan, California is much more similar than Australia, southern Africa, or the Basin-Plateau of North America in geography and ecology; therefore it is a more useful comparison to Late Bronze Age Canaan. In the California region, the overall population density was calculated considerably higher than the aforementioned regions. A demographic study on the Native American population in California just prior to 1769 and the coming of the Franciscans and eventual settlement of people from Europe and the early United States, which resulted in an overall decline of the Native American population, estimated the population by subdivisions and concluded an overall figure of 310,000 +/-

30,000 for all of California (Cook 1978: 91).⁸⁶ This equates to an approximate population density for the region of the entire state at 0.8 people per square kilometer on the higher end of the spectrum. The higher population densities for hunter-gatherer nomads in California may be a result of better ecological conditions and perhaps the methodology and data used by Cook to calculate the populations. However, the population density of different sub regions also varied greatly depending upon geography and climate. In coastal areas and well watered plains, the densities were greater; in arid regions and mountain regions the densities were much lower (Cook 1978: 91). A later study of demographic change in California suggested that due to epidemic diseases and the demographic effects, the native population may have been even higher than this estimate prior to 1769 and the entrance of settlers into California (Preston 2002: 69-121). Because of the probable drastic decrease in population due to the introduction of disease, this study suggests the possibility of an even higher population density for the hunter-gatherers California in the pre-settlement period, and by parallel, the possibility of an even higher population density for nomadic Late Bronze Age Canaan. Thus, the California density figures may even be considered very conservative estimates for nomadic population density in Late Bronze Age Canaan.

Similar density ranges from an especially relevant comparison in nomadic population density of a large region are found in a study of the Basseri tribe of South Persia. According to demography studies in the middle of the 20th century, a population totaling as high as 17,100 people occupied an area between 15,540 km² and 38,850 km² (Barth 1961: 1, 12). This would make their approximate population density range between 1.1 and 0.44 people per km², suggesting that the overall California average is not only plausible, but relatable to a Near Eastern context. As California is geographically and climatically the most similar to Canaan, the slightly higher nomadic population densities found in California and in South Persia—a region of the Near East—should be closer to ancient Canaan than those from southern Africa, Aboriginal Australia, or the North American Basin-Plateau calculated after settlers had already moved to the regions. The California data is also the most useful because it is based on

⁸⁶ The regions of ancient California that were analyzed do not amount exactly to the entire surface area of the modern state of California, although the total area is close. The eastern fringes of California, especially in the southern half of the region, were desert and almost unpopulated. Cf. Cook 1978: Figure 1.

the pre-settlement period before the hunter-gatherer and nomadic lifestyle and population was drastically affected. The general agreement of the overall population density data from California and Persia suggests that ancient nomadic groups, even from different cultures, could have had similar population densities when living in similar geographical and climatic spheres.

7.5 POPULATION DENSITIES OF GEOGRAPHIC REGION TYPES

The four general geographic divisions of Canaan—coastal land, valleys and plains, highlands, and arid regions—would have had different nomadic population densities due to climate and geography. Thus, calculating each region separately in addition to an overall population density coefficient should yield the most accurate results. In order to acquire approximate region specific population densities, demographic studies of specific geographical subregions with data relevant to population density will be analyzed and evaluated.

7.5.1 Coastal Regions

Australian Aboriginal tribe population density of the Kariara showed approximately one person per 7.8 to 18.1 square kilometers, or 0.13 to 0.06 in coastal and interior coastal environments (Lee & Devore 1968: 189-90). Yet, even the high figure of 0.1 to 0.2 people per square kilometer appears at odds with the more likely overall population densities derived from studies in California and Persia. In the coastal areas of California for just prior to 1769, the population was estimated at approximately 135,000 (Heinzer and Elsasser 1980: 27; cf. Cook 1976). The approximate population density of the coastal region would have been 0.9 people per km². This figure appears more likely for Canaan in light of the climatic and geographic similarity between Canaan and California, and the results of the Persia study.

7.5.2 Valley and River Valley Regions

In the Murray River and Darling River areas for Aboriginal Australia, the population density was approximately one person per 5.2 to 7.8 square kilometers, or 0.19 to 0.13 people per square kilometer (Lee & Devore 1968: 190).

In the Great Basin region of North America, population densities in river valleys were calculated at approximately 1 person per 2.6 square kilometers, or 0.39 people per square kilometer, such as in the Reese River Valley (Steward 1938: 49).

Yet, a much higher density was found in an ethnographic study of a hunter-gather population in Botswana. In the area of the Nata and Sebanana Rivers in Botswana, Africa, a demographic study of the Bushmen and Bantu populations calculated the population density of this entire area to be approximately 1.2 people per km² (Cashdan 1980: 97-99). However, it is acknowledged that the population densities could decrease if the area in the study included extended boundaries that encompassed the hunting areas (Cashdan 1980: 97-99). Thus, this figure should be interpreted as a high point for hunter-gatherer and nomadic groups for Botswana, Africa living in river regions. Nomads in Canaan were not particularly reliant on hunting; thus, their population densities in river, lake, valley, and plain areas would have been more analogous to the estimate for the river regions of the Nata and Sebanana.

California yielded a population density for river and valley areas similar to Botswana. In the valley regions of California, the pre-Franciscan population was calculated to be approximately 160,000 (Heinzer and Elsasser 1980: 27; cf. Cook 1976). The density of these areas would have been approximately 1.3 people per km². The nearly identical population density figures from the Botswana and California studies, which have much better data, suggest that a realistic nomadic population density for river, lake, and valley regions of Late Bronze Age Canaan would have been between 1.2 and 1.3 people per km².

7.5.3 Highland and Mountain Regions

In mountainous regions of Australia, the Aboriginal population density was approximately one person per 77.6 to 103.5 square kilometers, or 0.013 to 0.01 people per square kilometer (Lee & Devore 1968: 189). The data from post-settlement North America suggests a slightly higher population density in mountain or highland regions. In the region of the Kawich Mountains, the density was as low as one person per 58 square kilometers, or 0.02 people per square kilometer (Steward 1938: 49). It should be noted again that these densities would have been even higher in pre-settler times, thus

the highland or mountain region density for Canaan should be higher. Following this idea, in California, a mountainous population density could be calculated as high as 0.3 people per km² based on the region population estimate (Heinzer and Elsasser 1980: 27; cf. Cook 1976). In light of the more compatible data from California, a highland region nomadic population density of approximate 0.3 people per km² appears to be the more likely figure.

7.5.4 Desert and Arid Regions

Regions such as the arid areas in southern Canaan and to the south of Canaan are known to have been inhabited by nomads during the period. Thus, these arid regions, even if devoid of permanent settlements, should be factored into the overall population. The Biography of Amenemhab records that there were people living in these southern arid regions during Late Bronze I (Breasted 1906a: 231). Another Egyptian campaign text records that Seti I battled against Shasu in this area, indicating that a nomadic population still lived there in Late Bronze II (Breasted 1906b: 46). For desert populations of hunter-gatherer type population, which could be applicable to the nomadic population of desert and extremely arid regions in Late Bronze Age Canaan, an estimate of approximately 0.03 people per square kilometer was suggested based on studies of Australian aboriginal desert populations (Hassan 1979: 150). In another study of one of the most arid regions of Australia in which an overall population density lower than that of arid regions of Canaan should be expected, the Aboriginal tribal population density was estimated to be as low as one person per 207 square kilometers, or 0.005 people per square kilometer (Lee & Devore 1968: 189). However, in earlier, pre-settlement times, the Aboriginal population was much higher, and thus the density would have been higher (Lee & Devore 1968: 190). Data from North America shows that in arid regions, such as Death Valley and the area around Las Vegas (decades before the city was established), population density was approximately one person per 77.6 square kilometers, or 0.013 people per square kilometer (Steward 1938: 48-49). Although much of the data for these population densities of Native American groups is from censuses, and thus very reliable for that particular time period, it is essential to realize that the censuses are generally from the period of the late 19th

century, “a time when the population had been reduced by war and disease...revision of the estimates derived from this source should be upward (Steward 1938: 46). Thus, a higher figure should be used for estimating the possible nomadic population of arid regions in Canaan. For the Dobe area Bushmen—a group of desert hunter-gatherers—an overall population density for the land utilized was calculated to be 0.17 people per square kilometer (Lee 1966: 199-200). A desert region figure not too distant from that of the Dobe area Bushmen was also derived from California. For the Mohave, Colorado deserts, and Owens Valley regions, an approximate population density of 0.07 people per km² was calculated from the sub-region population estimate (Heinzer and Elsasser 1980: 27; cf. Cook 1976). Thus, a desert and arid region population density of approximately 0.1 people per km² as a baseline may be applicable to Canaan during the Late Bronze Age, as these are the closest available ethnographic parallels based on real data.

7.6 POPULATION DENSITIES FOR NOMADIC REGIONS OF CANAAN

The following subregion population density figures will be used to calculate the nomadic population of Canaan in the Late Bronze Age:

Coastal regions of Canaan: 0.9 people per km²

River, lake, valley, and plain regions of Canaan: 1.3 people per km²

Highland and mountainous regions of Canaan: 0.3 people per km²

Arid and desert regions of Canaan: 0.1 people per km²

The overall total nomadic population for Canaan derived from the specific sub-regions will be compared with a total population number derived from regional nomadic population densities between 0.8 people per km² and 1.1 people per km² to give a possible overall range.

Table 7.1 Nomadic Population Densities

| Coastal | Valley/Plain | Highland/Mountain | Arid/Desert | Overall |
|---------------------|---------------------|---------------------|---------------------|-------------------------|
| 0.9/km ² | 1.3/km ² | 0.3/km ² | 0.1/km ² | 0.8-1.1/km ² |

7.7 CONCLUSION

The densities of the different geographical subregions will be applied to specific geographical regions of Canaan—the coast, the desert, the highlands, and the valleys. For individual geographical regions the specific data from California will be used, with the understanding that the figures may be on the high end of the spectrum. For a region-wide estimate, the density coefficient from the California study, with the southern Persia study as a confirmation of this general density figure, will be used to calculate an overall population of the region. The area of permanent settlements plus a buffer zone of approximately a 1 kilometer radius, discovered both archaeologically in Canaan and an average for settlements mentioned in ancient texts but not yet discovered, will be subtracted from the total land area available to nomads. This methodology should yield the most likely number for the approximate nomadic population of Late Bronze Age Canaan from the currently available data.

CHAPTER 8

CATALOG OF LATE BRONZE AGE SITES IN CANAAN

8.1 INTRODUCTION

A comprehensive list of Late Bronze Age sites—including both archaeological and textual data—is necessary to properly and accurately estimate the individual and total settlement population of Canaan during the Late Bronze Age. Two comprehensive lists appear below—one list archaeological, the other textual. In Chapter 9 the lists are combined and reconciled, as much as possible, to arrive at a single, complete list of settlements during the period.⁸⁷ The first list, based purely on archaeological remains, consists of sites in Canaan which have been excavated or surveyed.⁸⁸ The second list, derived exclusively from Late Bronze Age documents, provides the names of all settlements in Canaan known from documents of the period. Many of the place names have been correlated with archaeological sites—some positively and some tentatively.⁸⁹ However, the sites appearing in documents of the Late Bronze Age are primarily utilized to correlate with a particular archaeological site or to aid in the estimation of a figure for undiscovered sites in Canaan during the Late Bronze Age. Unfortunately, numerous place names attested in Late Bronze Age documents have not yet been discovered archaeologically or identified with a particular site. Thus, the final list will consist primarily of archaeologically known Late Bronze Age sites, but the site and population total derived from this list will be supplemented by undiscovered sites which are attested in Late Bronze Age documents in order to arrive at a total population estimate for the settlements of Late Bronze Age Canaan.

8.2 LATE BRONZE AGE ARCHAEOLOGICAL SITES IN CANAAN

Through archaeological investigation of the Canaan region over a period of more than a century, hundreds of sites have been discovered that contain material remains

⁸⁷ This single list appears in Chapter 9 in order to estimate the population of each settlement and collectively the total settlement population for Canaan in the Late Bronze Age.

⁸⁸ In many cases, the approximate site surface area (in hectares) is known for the site based on excavation findings or the distribution of ceramics examined during survey. In other cases, the site area must be estimated by GIS measurement of satellite photographs of the site.

⁸⁹ See Chapter 9 for correlation of particular archaeological sites with textually attested settlements.

from the Late Bronze Age. In particular, intensive surveys and salvage excavations of the past 40 years have increased the total number of known Late Bronze Age sites substantially. In 1984, a study of Late Bronze Age sites in Canaan—although working only on material from the region formerly encompassed by British Mandate Western Palestine—recorded a maximum of 101 sites occupied in the Late Bronze Age, and substantially less than that in each sub-period of the Late Bronze Age (Gonen 1984: 66, Table 2). A study in 1996, again working mainly with sites in the region of former Western Palestine, noted an increase to 323 total Late Bronze Age sites, with the acknowledgement that more sites, at least of the smaller variety, would be discovered in the future (Finkelstein 1996: 243). Another study in 2004, focusing primarily on Late Bronze II sites in the area of Canaan—and in some cases beyond its boundaries—presented over 450 sites (Goren 2004: 336-355).⁹⁰ The present study, working with materials as recent as 2013, demonstrates that the total number of sites in the entire area of Late Bronze Age Canaan which contain material from the Late Bronze Age is in excess of 700. Thus, ideas about the total population from earlier compilations of Late Bronze Age sites will be substantially smaller in comparison to the present, more expansive data and the newly proposed methodology for estimating past populations through archaeological data rather than only utilizing modern ethnographic analogy.

The following list contains all of the currently known archaeologically attested sites within the previously discussed bounds of Canaan that have yielded Late Bronze Age material. Certain sections in the region of ancient Canaan have been the subject of more intense archaeological activity, including both excavation and focused survey, while other sections have had limited investigation. Southwestern Syria, for example, does not have an abundance of archaeologically known Late Bronze Age sites due to less excavation and survey coverage, although texts from the Late Bronze Age suggest that it was an area in which many settlements existed during the period. Additionally, even in areas that have been relatively extensively surveyed and excavated, some sites must have inevitably been missed or overlooked, while others may not have been

⁹⁰ Some sites were located in Moab to the southeast of Canaan, while some sites were located beyond Byblos and Labweh, considered beyond the northern boundary of Canaan. The vast majority of the sites included Late Bronze II occupation, while a few were considered questionable and a few were considered as possibly only occupied in Late Bronze I.

excavated to the point that their Late Bronze Age remains have been unearthed. Thus, there is a certain percentage of sites missing that may be archaeologically attested in the future. These missing sites may add a significant percentage of the total sites, but unlikely a drastically significant percentage of overall occupational area and population. These yet undiscovered sites are considered in the final evaluation of the total number of Late Bronze Age settlements and total population in Late Bronze Age Canaan.⁹¹

Each site is listed alphabetically, if it has been assigned a name, and additional names are given if the site is known by multiple names. Following the identification of the site, the period(s) of occupation are listed either as LB (general), LB I, LB II, or both LB I and LB II. For the majority of the sites, only the designation LB is given either due to lack of data to divide the site into sub-periods, or because the principal investigators found evidence suggesting the site was occupied throughout the Late Bronze Age but did not definitively state that both sub-periods were represented. Sites designated by surveyors or excavators as LB III are recorded as LB II.⁹² As the sub-period designations used in this study are LB I and LB II, the designation LB III will not be used. The complete entry for each site appears in Chapter 9 and contains multiple names and spellings for the site, the Late Bronze Age name for the site (if known or suggested), the location of the site, the site size in hectares (if known), the archaeological references for the Late Bronze Age material and site size, the proposed site type or distribution, and the population estimates derived from the available data applied to the methodology detailed in earlier chapters. To simplify locating sites by name, all apostrophes and dashes have been eliminated and sites appear in the list according to their name rather than their descriptor (i.e. Tell, Khirbet, etc.).

⁹¹ While a maximum of 20% missing sites may seem somewhat arbitrary, it is based upon the estimation that surface surveys have covered less than 75% of the area of Late Bronze Age Canaan, but certain poorly covered regions may have had a much lower settlement density. Southern Lebanon other than the coastal region and the Beqa Valley, and southwest Syria have had the least coverage by far. In those areas uncovered by intensive surveys, even where a prominent site has been discovered, there are undoubtedly numerous sites with Late Bronze Age occupation. This hypothesis is based upon the finding that wherever intensive surveys have been carried out within a substantial area of the region of Canaan, Late Bronze Age sites have been discovered—especially in areas which are suitable for settlement and contain sites from other archaeological periods. Further, some prominent sites that have yielded remains from other periods from survey have later yielded Late Bronze Age remains in the future after excavation and additional surveying. Some of the pottery of the Late Bronze Age, unfortunately, is often difficult to distinguish from Middle Bronze III or Iron Age I when the sherds are small or the sample size is limited.

⁹² LB III would usually be given the alternate designation LB IIB, but only LB I and LB II are being used.

8.2.1 List of Archaeologically Attested Late Bronze Age Sites in Canaan

1. Abhariya, Khirbet. LB.
2. Abil el Qamh, Tell. Tel Abel Beth Maacah. Tel Abil. Mudeira. LB.
3. Abila, Tell. Tell Qweilbeh. LB.
4. Adami, Tell. LB.
5. Adas, Tell. Horvat. Tel Adashim. LB.
6. Afula, Tel. Opher. LB I, LB II.
7. Afrin, Tell. LB.
8. Agra, Tel. Tell el-Agra. Aqra. LB.
9. Ahuzza, Nahal (underwater site). LB.
10. Ain Abda, Tell. LB I, LB II.
11. Ain Ahle, Tell. LB.
12. Ain Avazim. LB.
13. Ain Azzaziat, Tell. LB.
14. Ain Dor, Horvat. Khirbet es Safsafah. Horvat Zafzafot. LB.
15. Ain el Arais. Ain Livluf. LB.
16. Ain es-Saouda, Tell. LB.
17. Ain Hadda, Tel. Hadatha. LB.
18. Ain Ha Yadid.
19. Ain Khanziri, Tell. LB.
20. Ain Samiya. Khirbet Samiyye. LB II.
21. Ain Sofar, Tell. LB.
22. Ain Taruq, Khirbet. LB.
23. Ain Yarad. LB.
24. Aiyadiya, Khirbet. Eastern Akko valley. LB I, LB II.
25. Ajjul, Tell el. LB I, LB II.
26. Ajjuri, Khirbet. Khirbet Duheisha. Gealya. LB.
27. Akhziv, Tel. Tel Achzib. Tell Zib. LB.
28. Akhziv (underwater site) LB.
29. Akko. Akka. Tall al-Fukhar. LB I, LB II.
30. Al, Khirbat. LB.

31. Ala Safat. LB.
32. Alil, Tell. Khirbet Ras Ali. LB.
33. Aliya, Khirbet. Khirbet Ali. LB.
34. Allon, Horvat. Ras en Nabi. Khirbet Zarrah. Khirbet Zarra. Wadi esh Shallala. LB.
35. Amame. LB I, LB II.
36. Amman. Nuzha, Jebel. Rabbah? LB I, LB II.
37. Amman Temple Markha Airport. LB I, LB II.
38. Ammata, Tell. LB I, LB II.
39. Ana, Kafr. LB.
40. Anab el Kabir, Khirbet. Anab el Kebireh. LB.
41. Anafa, Tel. Tell Akhdar. LB.
42. Aphek. Tel Aphek. Ras el-Ain. Aphek-Antipatris. LB I, LB II.
43. Ara (Old School). LB.
44. Arah, Khirbet. Wadi Arah. LB I, LB II.
45. Arbaein, Tall el. Arbain. LB.
46. Areini, Tell. Tel Erani. LB II.
47. Ardon, Tell. Khirbet Abda. LB.
48. Argadat, Tell el. LB.
49. Aris, Wadi el. Ain Shibli. Tell Naqb el Arayis. LB.
50. Arkheen, Khirbet. Rukheim. LB.
51. Arqadat, Tell. LB I, LB II.
52. Arshaf, Tel. Arsuf. Apollonia (underwater site). LB.
53. Artal, Tel. Tell Sheikh Daud. LB.
54. Artusah, Khirbet. LB.
55. Ar Ras. LB.
56. Asawir, Tell el. Tel Esur. LB I, LB II.
57. Ashan, Horvat. LB.
58. Ash'ari, Tell el. Ashari. LB.
59. Ashdod, Tel. LB I, LB II.
60. Ashdod, Holot. LB.
61. Ashdod Soutren Beach. LB.

62. Ashkelon, Tel. LB I, LB II.
63. Ashkelon Underwater Sites. LB.
64. Ashtarah, Tell. LB I, LB II.
65. Asiyeh, Tell. LB I, LB II.
66. Askar, Tell el. LB.
67. Ateret, Tel. LB.
68. Atlit, Tel. LB.
69. At-Tall. LB.
70. Attaisi, Khirbet. LB.
71. Avinadav, Nahal. LB.
72. Ayanot. LB.
73. Ayit, Khirbet. Khirbet Aitawiya. LB.
74. Ayun Horeak, Khirbet. LB.
75. Ayyun, Tell el. LB.
76. Azeka, Tel. Tell Zakariya. LB I, LB II.
77. Azor. Yazur. LB II.
78. Bahan. LB.
79. Baidar, el. LB.
80. Balah, Deir el. LB.
81. Balameh, Khirbet . Belameh. Yiblam. Sheikh Mansur. LB II.
82. Banawi, Khirbet. Rasm Bir Jubarat. LB.
83. Baqah, Khirbet. LB I, LB II.
84. Baram, Kafar. LB.
85. Barbara. LB II.
86. Bar Elias, Tell. LB.
87. Barqai. Givat Shelomo. LB.
88. Baruch, Kfar. LB.
89. Bashir, Tell. LB I, LB II.
90. Bassah. LB.
91. Batash, Tel. Tell Batashi. Timnah. LB I, LB II.
92. Batn Umm Nari. LB.

93. Bayada. Al Bayad. LB I.
94. Beer Tivon. Khirbet el Bir. Tel Tabun. LB.
95. Beida, Khirbet. Horvat Lavnin. LB.
96. Beida Tell el. Horvat Seifan. LB.
97. Beida. LB I.
98. Beirut. LB I, LB II.
99. Beit Jann. Beit Gan, Khirbet. LB.
100. Beit Jirja. LB.
101. Beit Mirsim, Tell. Sheikh Handhal. LB I, LB II.
102. Beit Ur et Tahta. Lower Bet Horon. LB.
103. Beit Yafa, Tall. LB.
104. Beit Yanai (underwater site). LB.
105. Beitin. Bethel. LB IB, LB II.
106. Ben Nun (west). LB.
107. Beth Dajan. Ras Diyar. LB.
108. Beth Ezra. LB.
109. Beth el Khirbeh. LB.
110. Beth Shean, Tel. LB I, LB II.
111. Beth Shemesh, Tel. Tell Rumeileh. Ain Shams. LB I, LB II.
112. Beth Zur. Khirbet et Tubeiqah. LB I, LB II.
113. Bija. LB.
114. Bina, El. LB I, LB II.
115. Bira, Tel. Tell Bir el Gharbi. LB.
116. Bir Dhakwa, Tell. LB.
117. Bir el Hilu, Khirbet. LB.
118. Bir el Jadu. LB.
119. Birqish. LB.
120. Bir Tibis, Khirbet. Horvat Tevet. LB I.
121. Bir Zeit, Khirbet. LB.
122. Boded, Ain. LB.
123. Boded, Nahal. LB.

124. Bond. LB.
125. Buleiq, Khirbet. LB.
126. Bull Site. Dhahrat et Tawileh. Bezeq. LB II.
127. Burak, Tell el. LB I.
128. Bureij. LB.
129. Burgata, Tel. Tel Shitri. Burgeta. Hammadiyat. LB.
130. Burin, Khirbet. LB.
131. Burna, Tel. Tell Burnat. LB I, LB II.
132. Burqin, Khirbet. LB.
133. Busra esh-Sham. Busra. Bosra. LB.
134. Buweib, Khirbet. LB II.
135. Buweida, Khirbet. LB.
136. Byblos. LB I, LB II.
137. Caesarea (underwater site). LB.
138. Dabsha, Khirbet. Khirbet Dabsheh. LB.
139. Dabulya, Khirbet. LB I, LB II.
140. Dalton. LB.
141. Damiyeh, Tell ed. Tell Damieh. Khirbet Dama. LB II.
142. Damun. LB.
143. Dan, Tel. Tell el Qadi. Laish. Dan. LB I, LB II.
144. Daneb el Kalb, Khirbet. Khirbet Dhanab el Kalb. LB.
145. Dardara. LB.
146. Dauk, Khirbet. Tel Daokh. LB.
147. Debbah, Tell. LB.
148. Deir Alla, Tell. LB I, LB II.
149. Deir Khabiyah, Tell. LB.
150. Deir, Khirbet. LB.
151. Deir, Khirbet ed. LB.
152. Deir, Tell. LB.
153. Deir, Tell ed. LB.
154. Deir Zenoun, Tell. LB.

155. Delhamiye, Tell. LB.
156. Dalhamiya, Khirbet. Delhemiyeh. LB.
157. Devora, Ain. LB.
158. Dhahab, Tall adh. Edh Dhehab. Tulul edh Dhahab. LB II.
159. Dhahhak. Dahak. Ed Duq. LB.
160. Dhuq, Khirbet edh. LB.
161. Dibbin, Tell ed. LB.
162. Dishon, Nahal. LB.
163. Dor, Tel. Tell el-Burj. LB.
164. Dotha, Tell. Tell Dothan. Dothan. LB I, LB II.
165. Doulab, Tell. LB II.
166. Dulab, Tell al. LB.
167. Dover, Tel. Khirbet Duweir. LB I, LB II.
168. Ebal, Mount. El Burnat. LB II.
169. Edron, Khirbet. Khirbet al Guela. LB.
170. Einabus. LB.
171. Ekhsas, Tell. Tall Akhsas. LB II.
172. Eli, Tel. Khirbet Sheikh Ali. LB.
173. Emeq Refaim. Manahat. LB I, LB II.
174. Emunim. LB.
175. Eshtori, Tel. Tel Malha. Tell el Maliha. LB.
176. Et Tell, Khirbet. Ai. LB I.
177. Eton, Tel. Tel Aitun. Eitun. LB.
178. Fajja. Saida. Petah Tiqwa. LB.
179. Far, Tell el. Tel Par. Same as Yifar? LB II.
180. Farah, Tell el (north). LB I, LB II.
181. Farah, Tell el (south). Tell Fara. Tel Sharuhen. LB I, LB II.
182. Faras, Tall. Har Peres. LB II.
183. Farrukhiya. Haltamiya. LB.
184. Farwana, Khirbet. Horvat Parve. LB.
185. Fawwar. LB.

186. Fayadieh. LB.
187. Fukhar, Tell el. LB I, LB II.
188. Ful, Tell el. LB.
189. Funeitir, Khirbet. LB.
190. Fuqeiqis, Khirbet. LB.
191. Gahosh, Khirbet. Khirbet al Gahush. LB.
192. Gallim, Kefar (underwater site). LB.
193. Gamom, Khirbet. Khirbet Gumegima. LB.
194. Gath. Tell es Safi. Tel Zafit. Tel Gat. LB I, LB II.
195. Gath Hefer, Tel. Mashhad. Khirbet Zurra. LB.
196. Gaza, Tell. LB I, LB II.
197. Gbub. LB.
198. Geba-Shemen, Tel. Tell el Amr. LB.
199. Gema, Tel. Tell Jemain. LB.
200. Gerar 100. LB.
201. Gerar, Nahal. Wadi esh Sharia. LB.
202. Gezer, Tel. Tell el-Jezer. Abu Shusha. Gezer. LB I, LB II.
203. Ghalta, Tell. Tel Reala. LB.
204. Ghassil, Tell el. LB I, LB II.
205. Ghazaleh, Tell. LB I, LB II.
206. Ghozlan, Umm el. LB I, LB II.
207. Ghreimun, Tall. LB.
208. Gibeon. Tell el Jib. LB.
209. Giloh. Gillo. LB II.
210. Girit, Tel. Tell el Jariya. LB.
211. Giveat Oz. LB.
212. Goded, Tel. Tell Judeideh. Tell Moreshet Gat. LB.
213. Gush Halav. El Jish. LB.
214. Hadar, Tel. Khirbet Khadr. Sheik Khadr. LB I.
215. Hadid, Tel. Haditheh. LB.
216. Haifa Nema Ha-Qishon. LB.

- 217. Hajjaj, Tell. LB II.
- 218. Halif, Tel. Tell Khuweilifeh. LB I, LB II.
- 219. Halukim, Horvat. LB.
- 220. Ham. LB.
- 221. Hamamat, Khirbet. LB.
- 222. Hamid, Tell. Ras Abu Hamid. LB.
- 223. Hamid, Tall. LB.
- 224. Hammah, Tell el. Hamath. LB.
- 225. Hammeh, Khirbet el. Hammeh 03. LB.
- 226. Hammeh 08. LB II.
- 227. Hammeh 19. LB.
- 228. Hamud, Ras. El Bird. LB II.
- 229. Hanita. LB.
- 230. Hannathon, Tel. Tell Bedeiwiyeh. Hannaton. LB.
- 231. Haql el Baida. LB.
- 232. Haql el Gami, Tell. LB.
- 233. Har Ammiad. LB.
- 234. Hara el Fauqa, Khirbet. LB.
- 235. Haraqim, Tel. Tell Khiraqa. LB.
- 236. Harashim, Tell. Khirbet Tuleil. Ras es Suq. LB I, LB II.
- 237. Hariqet er Ras. LB.
- 238. Haror, Tel. Tell Abu Hureireh. LB I, LB II.
- 239. Harqala. LB II.
- 240. Haruv, Kfar. LB.
- 241. Haruvit. LB.
- 242. Hasas, Tel. LB.
- 243. Hashbe, Tell. LB.
- 244. Hattin, Qarn. Tel Qarnei Hittin. LB.
- 245. Hawam, Tell Abu. LB I, LB II.
- 246. Hawayah. LB.
- 247. Hayyat, Tell el. LB I, LB II.

- 248. Hazavim, Horvat. LB I.
- 249. Hazir, Tell. LB.
- 250. Hazor, Tell. Tell el Qedah. Khirbet Waqqas. LB I, LB II.
- 251. Hebron. Tell Rumeideh. Er Rumeida. LB I, LB II.
- 252. Heneideh, Tall. LB.
- 253. Henu, Rujm. LB I, LB II.
- 254. Hesban Region Survey Site 132. LB.
- 255. Hesban Region Survey Site 128. LB.
- 256. Hesi, Tell el. Tell Hasi. LB I, LB II.
- 257. Hilu, Tell el. Tell el Hulu. Abu Sif. LB I, LB II.
- 258. Hira. LB.
- 259. Hishule Carmel (underwater site). LB.
- 260. Hissou. LB.
- 261. Hizzin, Tell. LB.
- 262. Hof Amnun (west). LB.
- 263. Hofit (north). LB.
- 264. Holon. LB.
- 265. Homet, Ain. LB.
- 266. Horeshat Yaala. Shajarat el Kalb. LB.
- 267. Hosn, Tell el. LB I, LB II.
- 268. Hotrim (underwater site). LB.
- 269. Husn, Tall el. Tell Husun. LB I, LB II.
- 270. Idham, Umm el. LB.
- 271. Ifshar, Tell el. Tel Hefer. LB I, LB II.
- 272. Iktanu, Tall. LB.
- 273. Iraq er Rashdan. LB.
- 274. Irbid, Tall. Arbela. LB I, LB II.
- 275. Izbet Sartah. LB II.
- 276. Iztabba, Tell. Tell el Mastubeh. LB.
- 277. Jarash. Jerash. LB I, LB II.
- 278. Jazayir. LB.

- 279. Jedur, Khirbet. LB.
- 280. Jemmeh, Tell. Tell Gemmeh. Gamma. LB I, LB II.
- 281. Jenin, Tell. LB.
- 282. Jericho. Tell es Sultan. LB I, LB II.
- 283. Jerisheh, Tell el. Tel Gerisa. Gerisa, Tel. Tel Grissa. LB I, LB II.
- 284. Jerusalem. LB I, LB II.
- 285. Jerusalem, Wadi ed Damm/Nahal Atarot. LB.
- 286. Jerusalem, Mount of Olives/Jebel Zeitun. LB.
- 287. Jerusalem, St. Etienne Monastery. LB.
- 288. Jerusalem, Government House/Armon Ha Naziv. LB.
- 289. Jerusalem, Dominus Flevit. LB I, LB II.
- 290. Jett. Jatt. Djett. LB.
- 291. Jezreel, Tel. Zerin. LB I, LB II.
- 292. Jijjin. LB I, LB II.
- 293. Jisr, Tell el. LB.
- 294. Judur, Khirbet. Tell Judur. LB II.
- 295. Juhfiyaa. LB II.
- 296. Kabb el Kroum, Tell. LB I, LB II.
- 297. Kabri, Tel. Tall an Nahr. Tell Qahwa. Dhahrat et Tell. LB I, LB II.
- 298. Kama, Kafr. LB.
- 299. Kamid el Loz. Kumidi. LB I, LB II.
- 300. Karm. Horbat Deveqa. LB.
- 301. Karmeliya. LB.
- 302. Kanaf, Horvat. Mazraat Kanaf. LB.
- 303. Kanisa, Khirbet. Horvat Kones (underwater site). LB.
- 304. Karpas, Tell. Qarantina. LB.
- 305. Kassis, Tell. Tel Qashish. Tell el Qassis. LB I, LB II.
- 306. Kataret es Samra. LB I, LB II.
- 307. Kebarrah, el. Khebarrah. LB.
- 308. Kedesh, Tel. Tell Abu Qudeis. LB I, LB II.
- 309. Keilah. Khirbet Qila. Khirbet Qeila. LB.

- 310. Kerak, Khirbet. Tel Beth Yerah. LB.
- 311. Kereimeh, Tell. Keraimeh. Kureimah. LB.
- 312. Khabyeh. LB.
- 313. Khalde. LB.
- 314. Khan al Aqaba. LB.
- 315. Kharabeh, Tall el. LB I, LB II.
- 316. Kharaz, Tell Abu. LB I and LB II.
- 317. Khas, Abu el. LB.
- 318. Kheibar, Khirbet. LB II.
- 319. Kheir Allah. LB.
- 320. Kheiriya. Ibn Ibreiq. Mesubbim Junction. LB.
- 321. Khelayel. Khellaiyel. LB I.
- 322. Khirbeh, Tell el. Tall al Khirba. LB I, LB II.
- 323. Khishash, Khirbet. Tel Bar. Tell Aghbariya. LB.
- 324. Khrab. LB.
- 325. Khreis, Tel. Tel Chres (underwater site). LB
- 326. Khudeira, Tell. LB.
- 327. Kinrot, Tell. Tell el Oreimeh. Tell Ureymeh. Tel Chinnereth. LB I, LB II.
- 328. Kison, Tel. Tell Keisan. LB I, LB II.
- 329. Kitan, Tel. Tell Kittan. Tel Musa. Tell Sheikh Qasim. LB I, LB II.
- 330. Klakha, Khirbet Umm. LB.
- 331. Kuhwani. Hamizre Ha Zarua. LB.
- 332. Kumah. Kumeh. LB.
- 333. Kureikur, Khirbet. Givat Ehud. Yehudit. LB
- 334. Kuz, Khirbet Kefr. Khirbet Huweiha. LB.
- 335. Kweim. LB I, LB II.
- 336. Labweh, Tell. Tell Labwa. LB.
- 337. Lachish, Tel. LB I, LB II.
- 338. Lod. El Ludd. LB.
- 339. Maaravim, Tel. LB.
- 340. Mabrak. Al Mabrak. LB II.

341. Madawwara Tahton, Ein. LB.
342. Madrasa, Tell. Tel Madras. Tel Midrash. Maoz Hayyim. LB.
343. Magfiat N 98. LB.
344. Mahane Ha Maapilim (underwater site). LB.
345. Mahaz, Nahal. LB.
346. Mahoz, Tel. Tell es Sultan. LB.
347. Majdal, Khirbet. Horvat Migdar. LB.
348. Majdalouna. LB I.
349. Mallaha, Tell. Reemim, Tall. Tall ar Rumman. LB.
350. Malot, Tel. Tell Malat. LB I, LB II.
351. Malta, Khirbet. LB.
352. Maluah, Tel. Tell Qitaf. Tel Jizl. LB.
353. Malul. Maalul. LB.
354. Manam, Horvat. Khirbet Deir en Numan. LB.
355. Manqeh el Foqa, Khirbet. LB.
356. Mansura, Khirbet el. LB II.
357. Mansurah. LB.
358. Maqam Breqa. Maqam Bureji. LB.
359. Maqatir, Khirbet. LB I.
360. Maqbarah. LB I, LB II.
361. Maqbarah, Tell. Meqbereh, Tall. LB II.
362. Maqbarat es Sleikhat. LB.
363. Maqne, Tell. LB I, LB II.
364. Maraait. LB.
365. Marg Sirin. Khirbet Sirin. LB.
366. Marjame, Khirbet. Khirbet Marjama. LB I, LB II.
367. Masad, Tel. LB I.
368. Masiq, Khirbet. Ain al Arab. Masha, Khirbet. Horvat Meseh. LB.
369. Masos, Tel. Khirbet Meshash. LB II.
370. Masud, Khirbet. Wadi Masud. LB.
371. Matabi, Tell el. LB.

- 372. Mathane, Tell el. LB.
- 373. Mawalih. Maapil. LB.
- 374. Mayita, Ain el. LB I.
- 375. Mazar, Tall el. LB.
- 376. Mearot, Nahal (underwater site). LB.
- 377. Medineh, Deir el. Dahr al Madina. LB I, LB II.
- 378. Megadim, Tel. Tall Zamr. LB II.
- 379. Megiddo. Tel Megiddo. Tell al Mutesellim. LB I, LB II.
- 380. Meidan, Tell. LB I, LB II.
- 381. Melilot. LB.
- 382. Menora, Tel. Tell Abu Faraj. LB.
- 383. Menorim, Horvat. LB.
- 384. Merun, Khirbet. Meron. LB.
- 385. Mevorakh, Tel. Tell Mubarak. LB I, LB II.
- 386. Mezarim, Horvat. El Mazar. LB.
- 387. Mhallah, Khirbet. Khirbet Mhallal. LB.
- 388. Midrakh Oz. Tel Jikhash. LB.
- 389. Miilya, Khirbet. Miilia. LB I, LB II.
- 390. Mikhal, Tel. Tell Michal. Tell Makmish. LB I, LB II.
- 391. Mikhmoret, Tel. Minet Abu Zaburah. LB.
- 392. Mimas, Tell. LB.
- 393. Miqneh, Tel. Mikne. Tell Muqanna. Eqrone. Ekron. LB I, LB II.
- 394. Miqwaq. LB I.
- 395. Miskeh, Tell. Tell el Qaziya. Tell el Kahiyeh. Umm es Smaikh. LB II.
- 396. Mistah, Tell al. Tell al Mustah. LB.
- 397. Mizpe Yonah. Nebi Yunis. LB.
- 398. Moghraqa. LB.
- 399. Mordekhay, Kefar. LB.
- 400. Moza. Qaluniya. LB.
- 401. Muajameh, Tell. Maajajeh. LB.
- 402. Mudawar, Tell Abu. LB.

403. Mudawarra, Rujm. LB II.
404. Muhaffar, Tell. Khirbet el Muhafar. LB II.
405. Mughaiyir, Khirbet. LB.
406. Mughayir, Tall el. LB.
407. Mughr ed Duruz. Mearot Druzim. Nahal Makhabram. LB.
408. Mugrabi, Tell. Tell Mughrabi. Tel Mor. LB I, LB II.
409. Muntar. Munthar. LB.
410. Musharifa, Khirbet. Khirbet Musheirefeh . Mizpe Zevulun. LB.
411. Musrara, Khirbet. Horvat Zeror. LB.
412. Muzabal. LB I.
413. Naameh, Tell. Tell Naama. Tell Naima. LB.
414. Nabaa, Tell en. LB.
415. Naba'a Litani, Tell. LB.
416. Nagila, Tel. Tell Najila. LB I, LB II.
417. Nahalal. Ain el Beida. LB.
418. Nahariya, Tell. LB.
419. Nahf. LB.
420. Nahl, Tell el. Nahal. Tell Nakhl. LB.
421. Nahr el-Kelb. LB.
422. Nahshonim. Mazor. LB II.
423. Najjar, Khirbet. LB.
424. Nami, Tel. Jazirat en Nami. LB I, LB II.
425. Nasbeh, Tell en. LB II.
426. Nazareth. LB.
427. Nebaa Shaad, Tell. LB.
428. Nekheil, Tall en (South). LB.
429. Neshev, Ain. Ain Nishshabi. LB II.
430. Netanya (underwater site). LB.
431. Netiv Ha Asara. LB I, LB II.
432. Netivot. LB.
433. Nijrah, Tell Abu. LB II.

- 434. Nimrin, Tell. LB.
- 435. Nimrud, Tell. Tel Nimrod. Dabbat el Khurrei. LB.
- 436. Nir Israel. LB.
- 437. Nissa, Tell. Tel Nisa. Tell Manshiya. LB.
- 438. Nisya, Khirbet. LB I, LB II.
- 439. Nizzanim. LB.
- 440. Nkheil, Tell en. LB I, LB II.
- 441. Nurieh, Tell. Tel Nuriah. Tel Nurit. LB I.
- 442. Obed, Tel. LB.
- 443. Otniel. LB.
- 444. Palmahim. LB I, LB II.
- 445. Parod. Tawahin Farradiya. LB.
- 446. Parur, Tell. Khirbet Fureir. LB.
- 447. Pella. Khirbet Fahl. LB I, LB II.
- 448. Poleg, Tel. LB.
- 449. Poran, Tel. Tell el-Farani. el Abtah. LB.
- 450. Qaadán, Tell. Tell Qurdan. LB I, LB II.
- 451. Qabb Elias, Tell. LB.
- 452. Qadas, Tell. Tel Qedesh. LB.
- 453. Qadish, Khirbet. LB.
- 454. Qafqafa. LB II.
- 455. Qana, Tel. Tell el Mukhmar. LB.
- 456. Qaq. LB II.
- 457. Qarnayim, Tell Kefar. Tell Abu Faraj. LB.
- 458. Qasir. LB I, LB II.
- 459. Qasr Bardawil. LB.
- 460. Qaun, Tell. LB.
- 461. Qataf, Tel. Tell el Qitaf. LB.
- 462. Qeisharun, Khirbet. Horvat Qishron. LB I.
- 463. Qeshet, Tel. LB.
- 464. Qiri, Tel. Tell Qira. Swtseila. Ain Mahshura. Mughr. Ha Zorea. LB I, LB II.

- 465. Qiryat Ata. LB.
- 466. Qiryat Shemona (south). LB.
- 467. Qiryat Yearim, Tell. Deir el Azar. Deir el Azhar. LB.
- 468. Qishyon, Tel. Tell Kasyun. Qishon. Kishon. el Khirba. LB.
- 469. Qitneh. LB I.
- 470. Qos, Tell el. LB.
- 471. Qraye. LB I, LB II.
- 472. Qubur el Kirad. Jiara. Bannir. Sheik Ajami. Ein Zehorah. Givat Nuah. LB.
- 473. Qubur el Walaida. Qubur al Walaydah. LB I, LB II.
- 474. Qumy, Khirbet. LB I.
- 475. Qurdana, Tell. Tell Kurdana. Tel Aphek. LB.
- 476. Qusibiyya el Jadida. Tell Saluqiyya. LB.
- 477. Rabi, Tell er. LB.
- 478. Rabud, Khirbet. Abu el Asjah. Dvir. LB I, LB II.
- 479. Radgha, Tell. Tell Ridgha. Tel Shalem. Tell el Alya. Horvat Alal. LB.
- 480. Rafah. Tell Rafah. LB.
- 481. Rahaya, Khirbet. LB.
- 482. Ramat Eliyahu. LB.
- 483. Ramat Gan. LB.
- 484. Ramia. LB.
- 485. Raqqat, Tel. Khirbet al Qunetira. LB.
- 486. Rawiyeh. Rawiyya. LB.
- 487. Ras, Khirbet el. LB.
- 488. Refaim, Har. LB.
- 489. Refeif, Tell. LB.
- 490. Regev, Tel. Harbaj, Tell. LB.
- 491. Rehil, Tall. LB.
- 492. Rehov, Tel. Tell Sarem. Tell Sarim. LB I, LB II.
- 493. Rekhash, Tel. Tell Muqarqash. Tell Mukharkhash. LB I, LB II.
- 494. Ridan, Tel. LB.
- 495. Rigma, Khirbet. LB.

- 496. Rihab. LB I, LB II.
- 497. Rikabi, Tall er. LB I, LB II.
- 498. Rish, Tell. Tel Risim. Tell Muwajeh. LB.
- 499. Rishon Le Ziyon. LB.
- 500. Roeh, Tel. Ruyan. LB.
- 501. Rosh Mayim, Khirbet. Khirbet Rushmiya. LB.
- 502. Rujjam, Khirbet. LB.
- 503. Rujm ed Darbi, Khirbet. LB.
- 504. Rujum, Khirbet el. LB.
- 505. Ruma, Khirbet. LB.
- 506. Ruweisa, Khirbet. Tel Rosh. LB I, LB II.
- 507. Saab. Shaab. LB.
- 508. Saar. Horvat Saar. LB.
- 509. Said, Deir Abu. LB II.
- 510. Saidiyeh, Tell es. Tell Saidiyyeh. LB I, LB II.
- 511. Safa, Tell es. LB.
- 512. Safit, Khirbet. LB.
- 513. Safut, Tall. LB I, LB II.
- 514. Sahem. Saham. LB II.
- 515. Sakhineh, Tell es. LB.
- 516. Sakhina, Tell. Tell Qallil. LB I.
- 517. Sakhra. LB I, LB II.
- 518. Sakka, Tell. LB I, LB II.
- 519. Sakut, Tell. LB.
- 520. Sal, Tall. LB I, LB II.
- 521. Salih, Khirbet. Khirbet Saleh. LB II.
- 522. Salil, Khirbet. LB.
- 523. Salus, Khirbet. Hamid. Arbua. LB I.
- 524. Samoqa, Khirbet. LB I.
- 525. Sanam, Tell. LB.
- 526. Sarab, Umm es. LB.

- 527. Sarafand. Sarepta. Ras el Qantara. LB I, LB II.
- 528. Sarsara, Khirbet. LB.
- 529. Sawafir esh Shamaliya. Shafir. LB.
- 530. Sawarkiya, Khirbet. Khirbet Sawarika. Horvat Shoraqa. LB.
- 531. Sejeret el Mezr. LB.
- 532. Sera, Tel. Tell esh Sharia. LB.
- 533. Shaar Efrayim. LB.
- 534. Shaal, Nahal. LB.
- 535. Shaalbim, Tel. Salbit. LB.
- 536. Shabana, Khirbet. Shabaneh. LB.
- 537. Shabaniya, esh. Tell Ein el Hariri. LB.
- 538. Shaddud, Tell. Tel Shadud. LB.
- 539. Shah, Khirbet esh. Horvat Shaha. LB.
- 540. Shahaf, Tel. Tell Abalis. LB.
- 541. Shahariya. LB I.
- 542. Shalaleh, Khirbet. Khirbet Shallala. LB.
- 543. Shallaf, Tell. Tel Shalaf. LB.
- 544. Shammam, Tell. Tel Shem. LB II.
- 545. Shamsin, Khirbet. Khirbet Shemesh. LB.
- 546. Shaqeir, Khirbet Abu. Ein Soqer. Shukeir, Khirbet Abu. LB.
- 547. Sharta, Khirbet. LB.
- 548. Sharuhen, Ein. Nahal Besor. LB.
- 549. Shave Ziyyon (underwater site). LB.
- 550. Shechem. Tell Balatah, Tell. Tel Shechem. LB I, LB II.
- 551. Sheik Dhiab, Tell. LB.
- 552. Sheik Hasan, Tell. Old Tel Yosef. LB I, LB II.
- 553. Sheik Madkur, Khirbet. Sheik Madkhur. LB.
- 554. Sheik Mahmoud. LB.
- 555. Sheik Saad. LB.
- 556. Sheik Safiriyah, Khirbet. LB I, LB II.
- 557. Sheik Saleh, Tell esh. LB.

- 558. Shelabun, Khirbet. LB.
- 559. Shelavvim, Khirbet. LB.
- 560. Sheqef, Tel. LB.
- 561. Sherif, Tell Abu. LB.
- 562. Shevah, Tell. Tell Subeih. LB.
- 563. Shifat, Khirbet. LB.
- 564. Shihab, Tell. Tal Shehab. LB.
- 565. Shikmona, Tel. LB I, LB II.
- 566. Shiloh. Tell Shiloh. Khirbet Seilun. LB I, LB II.
- 567. Shimron, Tel. Tell Samunia. Zomet Nahalal. LB I, LB II.
- 568. Shiqma, Nahal. LB.
- 569. Shokh, Tell. Tel Sokho. Khirbet Abbad. LB.
- 570. Shoqueq, Tel. Tell Shemdin. Shamdin. Tel Shamat. LB.
- 571. Shreim, Khirbet. LB.
- 572. Shubek, Khirbet as. LB.
- 573. Shubeil, Wadi. LB.
- 574. Shumshiya, Khirbet. Horvat Shimshit. LB.
- 575. Shuneh, Tell esh. Shunah esh Shemali. LB I, LB II.
- 576. Shuni, Enot. LB.
- 577. Shuqayif. Mashrafawi. LB.
- 578. Shuqqaq, Khirbet. Horvat Yoah. LB.
- 579. Shurrab, Khirbet. LB.
- 580. Shush, Tel. Abu Shusheh. Abu Shusha. LB.
- 581. Shuweikat er Ras, Khirbet. Shweikat er Ras. LB I, LB II.
- 582. Sibya. LB II.
- 583. Sidon. LB.
- 584. Sidon Dakerman. LB.
- 585. Sirhan, Tell. LB.
- 586. Sirtassa. LB II.
- 587. Sitt Leila, Tell. Tel Sefi. Tel Zefi. LB.
- 588. Slavim, Tel. Tell el Firr. LB.

- 589. Som. LB II.
- 590. Sora, Tel. Sarah. LB.
- 591. Soreg, Tel. Nahal ein Gev. Sarj, Tell. LB.
- 592. Sreq. Shureq. LB I.
- 593. Subat, Tell. Tel Zavat. LB.
- 594. Subeireh North. LB.
- 595. Suf. LB I.
- 596. Sufan, Tell. Tell es Sufari. Tel Sofar. LB II.
- 597. Sugha, Tell. LB.
- 598. Sulem. Shulam. Shunem. LB.
- 599. Sumeiriya, Tel. Givat Yesef. LB.
- 600. Sus, Tell Abu. LB II.
- 601. Suweqira, Khirbet. Khirbet Sugar. LB.
- 602. Taanakh. Tel Taanach. Tell Tiinik. LB I, LB II.
- 603. Tabaq. Ain al Tapaqa. LB.
- 604. Tabgha, Tahunat el. LB.
- 605. Tahuneh, Tall. Tall Tahun. LB I.
- 606. Talbaya, Tell. Tell Taalbaya. LB I, LB II.
- 607. Taleh, Nahal. LB.
- 608. Tamnun Island. Newe Yam (underwater site). LB.
- 609. Tamra. LB.
- 610. Tana el Foqa, Khirbet. LB.
- 611. Tana et Tahta, Khirbet. LB.
- 612. Tananir. LB.
- 613. Tanayil, Tell. LB.
- 614. Tarsi, Horvat. Khirbet el Rujm. Khirbet Tarsi. LB.
- 615. Teitaba. LB I, LB II.
- 616. Tel Aviv. LB.
- 617. Teomim, Tell. Tell Thum. Tel Teomin. LB.
- 618. Thora, Tell. Tel Shor. LB.
- 619. Thuraya, Tell eth. Arqayib et Tinya. Misor Negev Kinrot. LB.

- 620. Timmorim. LB.
- 621. Tina, Khirbet. LB.
- 622. Tira, Khirbet. Tirat Tamra. LB.
- 623. Tirat Shalom (South). LB.
- 624. Trumot, Tel. Khirbet Humra. Dharat el-Humraiya. LB I, LB II.
- 625. Tubas. LB.
- 626. Tuleilat Shawaqa. LB.
- 627. Tyre. LB I, LB II.
- 628. Ubeidiyeh, Tell. Tell el Abeidiyeh. Tel Ovadya. LB.
- 629. Ukkal, Horvat. LB.
- 630. Umeiri, Tell el. Tell Umeyri. Tall Umayri. LB I, LB II.
- 631. Umm ed Dananir, Khirbet. LB I, LB II.
- 632. Umm el Baqar, Khirbet. LB.
- 633. Umm Hamad esh-Sharqi. LB II.
- 634. Urma, Khirbet. Khirbet el Urmah. Khirbet el Urme. LB.
- 635. Urema, Tall al. Holata. LB.
- 636. Ushayir, Tall al. LB.
- 637. Wadi Arab Survey Site 046. LB.
- 638. Wadi Ziqlab Survey Site 091. LB.
- 639. Wadi Ziqlab Survey Site 037. LB.
- 640. Wadi Ziqlab Survey Site 034. LB.
- 641. Wadi Ziqlab Survey Site 033. LB.
- 642. Wadi Ziqlab Survey Site 030. LB.
- 643. Wadi Ziqlab Survey Site 018. LB.
- 644. Wawiyat, Tell el. LB I, LB II.
- 645. Yaaf, Tel. Tall al Qasab. LB.
- 646. Yaamun. LB I, LB II.
- 647. Yad Binyamin. LB.
- 648. Yad Rambam. LB.
- 649. Yafia. Yafa. LB.
- 650. Yafit (north). Yafit 7. LB

651. Yafo. Tel Yaffo. Yaffa el Atiqa. Jaffa. LB I, LB II.
652. Yalu, Khirbet. Tell Qiqa. LB I, LB II.
653. Yanin, Khirbet. Khirbet Naiel. LB.
654. Yannun, Khirbet. LB I, LB II.
655. Yanouh, Tell. LB.
656. Yarabiya. Nahal Yahudiya. LB.
657. Yarmuk, Khirbet. Tel Yarmut. LB II.
658. Yarmut, Nahal. LB.
659. Yavneh-Yam. Yavne, Tel. LB I, LB II.
660. Yavneh Dunes. LB.
661. Yehoshua, Kfar. LB.
662. Yemma, Khirbet. LB.
663. Yered, Ain. LB.
664. Yifar, Tel. Tell el Far. LB.
665. Ynam, Tel. Tell Naam. LB II.
666. Yiqrat. Iqrit. LB.
667. Yokneam, Tel. Tell Qeimun. LB.
668. Yuba, Kufr. LB II.
669. Yubla. LB.
670. Yusef, Khirbet. Khirbet Umm el Hosr. LB II.
671. Zahra, Tell. Tel Zahara. Ein Izhar. LB.
672. Zakari, Tall. LB II.
673. Zan, Tell. Tell Zanbaqiya Gharbi. Tell Shauk. Tel Shoshan. LB I, LB II.
674. Zanoah, Tel. Khirbet Zanu. LB.
675. Zara, Tall. Tall Ziraa. Tell Zerah. LB I, LB II.
676. Zarad, Tell Abu. LB.
677. Zarom, Horvat. LB.
678. Zawata. LB I, LB II.
679. Zayit, Tel. Tell Zeitah. LB I, LB II.
680. Zeevim, Tel. Khirbet Umm edh Dhiyab. el Medhiab. LB.
681. Zefat. Safed. LB.

- 682. Zeita. LB.
- 683. Zeitoun, Tell ez. LB.
- 684. Zeitun, Tell Abu. Tel Zeton. Bene Beraq. LB.
- 685. Zemed, Tel. Tell Sheikh es Simad. LB.
- 686. Zeror, Tel. Tell Dhurer. LB I, LB II.
- 687. Zibda, Tall. Tel Zivda. LB.
- 688. Zippor, Tel. Tell Tuyur. LB.
- 689. Zippori, Tell Ain. Sippori. Ain el Qasal. LB I, LB II.
- 690. Ziwan, Ein. Zomet Ziwan. LB.
- 691. Zofim, Tel. Tzofim. Mahmule. LB II.
- 692. Zomera, Tel. Sheik Abu Faraj. LB.
- 693. Zorea. Wilfrid House. LB.
- 694. Zureiq, Tell Abu. Tel Zariq. Ein el Jarba. LB.
- 695. No Name Site 23674. LB.
- 696. No Name Site 441. LB.
- 697. No Name Site 542. LB.
- 698. No Name Below Har Kdumim. LB.
- 699. No Name West of Haror. LB.
- 700. No Name Southeast of Shechem. LB.
- 701. No Name North of Tel Lachish. LB.
- 702. No Name West of Tel Nagila. LB.
- 703. No Name West of Tarqumiya. LB.
- 704. No Name North of Revadim. LB.
- 705. No Name East of Tel Zafit. LB.
- 706. No Name South of Azekah. LB.
- 707. No Name South of Nizzanim. LB.
- 708. No Name Southwest of Tel Poran. LB.
- 709. No Name South of Shaar Hagi. LB.
- 710. No Name North of Tel Ashdod. LB.
- 711. No Name South of Ashdod Yam. LB I, LB II.
- 712. No Name East of Ashdod. LB.

713. No Name Wadi el Hamrat Site 23. LB.

A total of 713 sites in the region of Canaan were occupied sometime during the Late Bronze Age. 165 sites contain evidence for occupation in both Late Bronze I and Late Bronze II (though not always continuous throughout the entire period), 191 sites contain evidence of occupation in Late Bronze I, 217 sites contain evidence of occupation in Late Bronze II, and 470 sites contain evidence of occupation in the Late Bronze Age in general, with sub-periods not specified.⁹³

Table 8.1 Number of Archaeological Sites According to Sub-Period

| Late Bronze I & II | Late Bronze I | Late Bronze II | Late Bronze |
|-------------------------------|----------------------|-----------------------|--------------------|
| 165 | 191 | 217 | 470 |

8.3 SETTLEMENTS IN CANAAN FROM LATE BRONZE AGE DOCUMENTS

Although hundreds of sites in Canaan with Late Bronze Age occupation have been located, some areas of the region are much more extensively explored than others, and full archaeological investigation at many sites or in modern cities is often not possible. Thus, the use of documents from the Late Bronze Age which name cities and towns in Canaan is a useful and necessary tool for compiling a comprehensive catalog of all possible settlements in Canaan that were inhabited during the Late Bronze Age and for determining an overall population estimate. Additionally, these documents also give the ancient name of the settlement during the Late Bronze Age, which can often be correlated to a particular archaeological site re-discovered during modern times or a current place name that has been preserved over the centuries. Thus, ideally many of the ancient place names could be matched up with known archaeological sites, while those not matched with an archaeological site, even tentatively, may be considered an undiscovered site and a possible addition to the total list of settlements. For example, the archaeological knowledge of Late Bronze Age sites in modern southwest Syria is

⁹³ Sites in the Amman region may be excluded as this area perhaps fell outside the boundaries of Late Bronze Age Canaan (cf. Chapter 2). Because of this, population totals including and excluding settlements from this region are presented in Chapter 9.

relatively sparse—even the major city of Damascus. Since the settlement size of these undiscovered sites is not known archaeologically, only their importance and relative size may be estimated based upon comparison to similar known sites in Canaan. Thus, a major textually attested but archaeologically unknown sites such as Damascus can be assigned a relative area and population size based on comparison to known sites, but restricted to a population estimate on the low end of the scale in order to prevent inflated population numbers. Most importantly, Late Bronze Age documents attest to many cities and towns in areas of Canaan that exhibit low settlement density archaeologically due to limited survey and excavation coverage. Therefore, these areas of Canaan can be considered to have been more populated than excavations and surveys have indicated which assists in estimating a possible percentage of sites and population that is not yet apparent on the archaeological record. If an area fitting this description appears to have contained many settlements during the Late Bronze Age, according to documents of the period, then it may be hypothesized that the settlement density and population was substantial and similar to areas more clearly attested both textually and archaeologically. Therefore, areas such as northern Central Canaan, the Hauran Plateau, and the Anti-Lebanon may have had substantial settlement density and populations that have not yet been conclusively demonstrated by the discovery of archaeological sites. While these areas amounted to approximately 25% of the total land area of Canaan, their climate, geography, more limited archaeological remains, and textual sources indicate that the number of settlements and population may not have been as high as areas such as around the Jordan River or along the Mediterranean coast (GIS).⁹⁴ Instead, textually known but archaeologically unidentified sites may illuminate the appropriate approximate increase in the number of total sites to substitute for those that are currently missing on the archaeological record.

The following list contains all of the textually attested cities and towns in Canaan, in alphabetical order, known exclusively from documents of the Late Bronze Age.⁹⁵ This list should be carefully distinguished from the list of archaeologically known Late Bronze

⁹⁴ In Chapter 9, a hypothesis is suggested that 10% of the total sites may be missing—primarily from these areas.

⁹⁵ It is possible that there are a few additional sites that could be added to the list, but the present study represents all of the cities and towns currently known from documents of the Late Bronze Age to be inside the proposed boundaries of Canaan. The nature of the list will allow subsequent discoveries to be easily integrated into the dataset and considered in the final results, which can be updated in the future as new discoveries are made.

Age settlements in Canaan. This textual list is derived from ancient documents and place name studies through the use of Ahituv, Albright, Moran, Givon, Elitzur, Gordon, Wiseman, the Ugaritic Data bank, Lichtheim, Breasted, plus independent analysis of Egyptian topographical lists, the Amarna Letters and subsequent related discovered texts, Egyptian papyri, Ugaritic texts, Alalakh texts, and Tanaach Letters. The Hebrew Bible was consulted to correlate these cities and towns to texts which refer or may refer to these cities and towns, primarily in the books of Joshua and Judges.⁹⁶

After each city or town entry, the reference for the ancient document is given in which the city or town is mentioned during the Late Bronze Age. In the case of certain city and town references that are debatable or controversial, reference to a study on that entry is given or an explanatory footnote is used. Although not every single mention in Late Bronze Age documents of a village, town, or city may appear in the references, references from both sub-periods of the Late Bronze Age I and Late Bronze Age II were given if they exist. Thus, textual attestation includes references from both LB I and LB II whenever possible.⁹⁷ Archaeological sites which have been identified with the ancient site or have been suggested as the location of that ancient site are also listed. After this information, the page number in the main text for the complete entry on the site is listed. The complete entry contains all names for the archaeological site (if a known archaeological site has been identified with the ancient place name), the Late Bronze Age name for the site, the location of the site (approximate if not identified with a specific archaeological site), the site size in hectares (if known, or otherwise an estimate based on comparative settlements), the archaeological references for the Late Bronze Age material and site size (if it exists), and the demographic estimates derived from the available data applied to the methodology detailed in earlier chapters.

⁹⁶ The Hebrew Bible was not used as a Late Bronze Age source for attesting the existence of cities and towns in Canaan during the Late Bronze Age, but only as a corroborative text that in some instances may help clarify the spelling or specific identity of a particular settlement. In other cases the Hebrew Bible was less clear than the Late Bronze Age inscriptions, tablets, and papyri due to the usage of the same name without additional distinctive markers for multiple settlements.

⁹⁷ This division into LB I and LB II from archaeological materials is a definite aid in deciphering demographic shifts between the sub-periods of the Late Bronze Age, but textual attestation of sites may only be reflective of a particular interest or event at a site during a certain time.

8.3.1 List of Textually Attested Late Bronze Age Sites in Canaan

1. Abel. Thutmose III Karnak List I: 90; Karnak list of Ramesses II: 19. (IU)
2. Abel. Thutmose III Karnak List I: 92.
3. Abel. Thutmose III Karnak List I: 99. (IU)
4. Abil/Obil. Thutmose III Karnak List I: 15a, 15b; EA 197:2? Abil es Suq near Damascus? (Ahituv 1984: 45).
5. Akka/Akko/Acco. EA 49; Aphek Letters.
6. Achshaph. Thutmose III Karnak List, I: 40a, b, c; Papyrus Leningrad 1116A vs: 70, 187. EA 366, EA 367.
7. Adara. EA 256: 24; Thutmose III Karnak List I: 14, II: 1; Papyrus Anastasi I 22:5 (IU)
8. Adi-Tagan/Adi-Dagan. Papyrus Leiden I 343, I 345. (IU)
9. Adoren. Annals of Amenhotep II, Memphis, Urk IV 1307: 4. (IU)
10. Adumim. Thutmose III Karnak List I: 36; Papyrus Anastasi I 22:1.
11. Ain. Thutmose III Karnak List I: 46. (IU)
12. Ain. Thutmose III Karnak List I: 86a, c; Amenhotep II List from Luxor: B17, Urk IV 1339: 1-10. (IU)
13. Ain Na'am. Ramesseum Ramesses II List: 4. (IU)
14. Ain Nagar. Karnak List of Ramesses II: 3. (IU)
15. Ain Shasi. Eni Shasi of EA 363:4? Thutmose III Karnak List I:5a,b,c (IU)
16. Aktamas. Thutmose III Karnak List I: 119.
17. Alamelek / Ltmlk/Altmlk.⁹⁸ Thutmose III Karnak List I: 45. (IU)
18. Alunnu/Halunnu. EA 197:14; Thutmose III Karnak List I: 27, a, b, c. (IU)
19. Ammia/Ammiya. Inscription of Idrimi lines 13-28. (IU)
20. Amshuna/Amshana. Thutmose Karnak List I: 24. Kom el-Hetan list of Amenhotep III: BNr 10. (IU)
21. Anaharat/Ana-uhartu. Thutmose Karnak List I: 52; Amenhotep II annals, Urk IV 1308: 15 . Seti I Split list: A 31.
22. Anamim. Ramesseum List: 9.
23. Aphek. Amenhotep II annals Urk IV 1305: 15; Thutmose III Karnak List: 66.

⁹⁸ El plus t feminine Egyptian element?

24. Apiq. Ramesses II Karnak reliefs KRI II 157:16; Ramesses II Luxor reliefs KRI II 182:2.
25. Aqar/Aqir. Thutmose III Karnak List I: 88; Soleb list of Amenhotep III: 11B2.
26. Aqidu. Thutmose III Karnak List: 17. Split list of Seti I: 9. Kom el-Hetan list of Amenhotep III: BNr 9. (IU)
27. Aqrabot. Kom el-Hetan list of Amenhotep III: BN1 11. (IU)
28. Aram. Kom el-Hetan list of Amenhotep III: DNr 7. Papyrus Anastasi III vs 5:5. Merneptah Border Journal. (IU)
29. Araru. Karnak List II of Thutmose III: 32. Araru of EA 256: 25. (IU)
30. Aruna. Thutmose III annals Urk IV 650: 6, 651:6, 652: 14, 654: 6 and 7.
31. Ashdod. Ugaritic ADdd (Ashdd). UT 311:3. UT 2014, UT 2095:9; Akkadian document from Ugarit Ashdadi (Elitzur 2004: 105).
32. Ashkelon. Papyrus Leningrad 1116A vs 76, 186 Amenhotep II; Soleb list of Amenhotep III: 7a5; Merneptah Stele KRI IV 19:5; EA 320-326.
33. Ashoshhin. Thutmose III Karnak List I: 58; List II: 3; Split list of Seti I: A37; Shashimi of EA 203:4. (IU)
34. Ashtaroth. Thutmose III Karnak List I: 28; Split list of Seti I: 8; Kom el-Hetan list of Amenhotep III: BN1 9. EA 197 and 256.
35. Asiru. Papyrus Anastasi I 23:6; Karnak list of Ramesses II: 12. (IU)
36. Ayyaluna. EA 287, EA 273.
37. Azaya. Papyrus Anastasi I 22:4. (IU)
38. Beer. Thutmose III Karnak List I: 50; Luxor list of Amenhotep II: 2. (IU)
39. Beirut. EA 118, EA 138, EA 141, EA 142, EA 143; Ugarit texts PRU IV: 162.
40. Beeroth. Thutmose III Karnak List I: 19.
41. Beeroth. Thutmose III Karnak List I: 109. Beruta of EA 92, 101, 114, 118, 138, 141, 142, 143, 155? Papyrus Anastasi I 20:8.
42. Beth Anath. Thutmose III Karnak List I: 97; Seti Karnak Lists; Seti El-Qurne List (northern sphinx): 23; Seti I Abydos list: A3; Ramesses II Karnak List: 39. (IU)
43. Beth Bnt. Thutmose III Karnak List I: 111.
44. Beth Dagan. Medinet Habu list of Ramesses III: 72.⁹⁹

⁹⁹ Perhaps copy from earlier Karnak list of Ramesses II (Ahituv 1984: 20).

45. Beth ilu Lahmi. EA 290. (IU)
46. Beth Tenni. EA 260. (IU)
47. Beth Zur. Ramesseum list of Ramesses II: 15.
48. Beth Shean. Thutmose III Karnak List I: 110; Stele of Amenemopet (14th century BCE); Karnak List of Seti I: 51; Seti I el-Qurne list (south and north sphinx): 16; Seti I Beth-Shean stele KRI I 12:9; Ramesses II Karnak list: 25; Papyrus Anastasi I 22:8; EA 289.
49. Beth Sopher/Beth Sofer. Papyrus Anastasi I 22:4-5. (IU)
50. Burquna/Burkuna. Thutmose III Karnak list I: 117; EA 250:43.
51. Busruna/Butsrana/Buzruna. Thutmose III Karnak list I: 23; Amenhotep III Kom el-Hetan list: BNr 5; Busruna of EA 199.
52. Dagal. Papyrus Anastasi I 21:8. (IU)
53. Dagalil. Papyrus Anastasi I 21:8. (IU)
54. Dalt Sinul. Ramesses II Luxor reliefs (right): 19, i.e. KRI II 181:4. (IU)
55. Damascus/Dimasqu. Thutmose III Karnak list I: 13. Amenhotep III Kom el-Hetan list: BNr 3. Amara West Ramesses II list: 19. EA 197:13-23.
56. Dapara. Ramesseum of Ramesses II. (IU)
57. Dia. Kom el-Hetan list of Amenhotep III: BN1 8.
58. Dor. Amara West list of Ramesses II: 76 (copied from Amenhotep III Soleb list); Soleb list of Amenhotep III: 2B4.
59. Dunubu. Kom el-Hatan list of Amenhotep III: BNr 7. (IU)
60. Durbin. Karnak List of Ramesses II: 29, copied onto Medinet Habu list of Ramesses III: 79.
61. Dutin. Thutmose III Karnak List I: 9. Kom el-Hatan list of Amenhotep III: CN1 13.
62. Edrei/Adura. Kom el-Hatan list of Amenhotep III: BNr 4; Papyrus Anastasi I 22:5. (IU)
63. Edrei/Udura. Thutmose III Karnak list I: 91; Thutmose III Karnak list II: 6. (IU)
64. Elteqon/Iltiqan. Papyrus Leiden I 343, I 345 rt 6:8 and vs 11:1.
65. Enishasi. EA 187, EA 363. (IU)
66. Gadshuna. Thutmose III Karnak list I: 4; Guddashuna of EA 177:2. (IU)

67. Garmom/Garmon. Thutmose III Karnak list I: 96. Karnak list of Seti I: 61. El-Qurne list (north sphinx) of Seti I: 24. Luxor list of Ramesses II (right): 17. (IU)
68. Gath. Thutmose III Karnak list I: 63. Luxor list of Amenhotep II: A14.
69. Gath Ashna. Thutmose III Karnak list I: 44; Perhaps EA 319:5. (IU)
70. Gath Padalla. Thutmose III Karnak list I: 70; EA 250:12.
71. Gath Rimmon. EA 250:46.
72. Gaza. Thutmose III's annals Urk IV 648:10-11. Papyrus Anastasi I 27:8. Papyrus Anastasi III vs 6:1. EA 289 Hazzatu, EA 296 Azzatu. Taanach letter 6.
73. Geba. Thutmose III Karnak list I: 114.
74. Geba Shemen. Thutmose III Karnak list I: 41; Amenhotep II's annals Urk IV 1308:12.
75. Gebath. Thutmose III Karnak list I: 103.
76. Gezer. Thutmose III Karnak list I: 104; EA 253; Soleb list Amenhotep III: 9B2; Thutmose IV Urk IV 1556: 11; Merneptah Amada Inscription KRI IV 1:9; Merneptah Stele.
77. Gilunu. EA 185. (IU)
78. Gina. EA 250:17.
79. Ginti kirmil. EA 288, EA 298.
80. Gitoth/Gintuta. Thutmose III Karnak list I: 93; Kom el-Hetan list of Amenhotep III: BN1 3; EA 295 rev: 7?
81. Gubla. EA 363, EA 162, etc. Byblos.
82. Guddashuna. EA 177.
83. Gurra. Taanach Letter 2, line 6. (IU)
84. Hykalim/Haikalim. Thutmose III Karnak list I: 89. Kom el-Hetan list of Amenhotep III BN1 10; 18th Dynasty scarab of Thutmose III (Lord of hkim) from Tell el-Farah (south) made of local material (Ahituv 1984: 104-105).
85. Ham. Thutmose III Karnak list I: 118.
86. Hirmil. Thutmose III Karnak list I: 81; Split list of Seti I: B39 (IU)
87. Hatum/Hatitum. Papyrus Leningrad 1116A vs: 78, 184. (IU)
88. Habisina. Thutmose III Karnak list I: 69. (IU)
89. Hadasht. Ramesses II Karnak list: 23. (IU)

90. Hadid. Thutmose III Karnak list I: 76. Split list of Seti I: B34. Luxor list of Amenhotep II: B7.
91. Hadum. Papyrus Anastasi I 18:7. (IU)
92. Hamatu. Thutmose III Karnak list I: 16.
93. Hamath. Seti I Karnak list. Seti I El-Qurne lists: 14. Seti I Wadi Abbad list: 7. Seti I larger Beth-Shean stele, KRI I 12:8, 11; Papyrus Anastasi I 21:7.
94. Harast. Kom el-Hatan list of Amenhotep III: BN1 12. (IU)
95. Hashabu. Thutmose III Karnak list I: 55; Split list of Seti I: A34; Amenhotep II Memphis annals Urk IV 1304:10,11; EA 174.
96. Hatsin. Amenhotep II Memphis annals Urk IV 1306:1; Amenhotep II Karnak annals Urk IV 1315:1. (IU)
97. Hasi. Thutmose III Karnak list I: 3. EA 185.
98. Hazor/Hatzor. Thutmose III Karnak list I: 32; Thutmose III annals Urk IV 760:5; Amenhotep II Karnak list: 18; Papyrus Leningrad 1116A vs: 77, 187; Seti I Karnak lists: 64, 66; Papyrus Anastasi I 21:7; EA 148.
99. Halunnu. EA 197. (IU)
100. Helkath/Helqatu. Thutmose III Karnak list I: 112.
101. Halkur/Harnkal . Thutmose III Karnak list I: 101; Thutmose III annals Urk IV 665:2, 744:6. (IU)
102. Hinnatunu. EA 245.
103. Hupish. Kom el-Hetan list of Amenhotep III: CN1 10. (IU)
104. Ibleam/Yablaamu. Thutmose III Karnak list I: 43.
105. Ijon/Iyyon/Ayyanu/Hayani. EA 256:28; Thutmose III Karnak list I: 95.
106. Jaffa/Yafo. Thutmose III Karnak list I: 62; Luxor list of Amenhotep II: A13; Split list of Seti I: A41; Amara West list of Ramesses II: 71; Papyrus Harris 500 vs 1:8; Papyrus Anastasi I 25:2; Yapu of EA 294, EA 296, EA 365; Aphek Ugaritic letter.
107. Jarmuth. Seti I lesser Beth Shean stele KRI I 16:8.
108. Jericho. Amara West List of Ramesses II, probably copied from Soleb list of Amenhotep III (Horn 1953: 201-203).¹⁰⁰

¹⁰⁰ On the Egyptian topographical list, the place name “Jericho” appears to have been spelled *iwrHy* plus the land determinative, which could be rendered as Yorehy. It is suggested that this spelling is equivalent to Yeriho/Jericho.

109. Jerusalem. EA 287.
110. Jokneam. Thutmose III Karnak list I: 113.
111. Kanah/Qana. Ramesseum of Ramesses II: 6.
112. Karmin. Thutmose III Karnak list I: 49. Ramesses II Karnak reliefs KRI II 156:16. Ramesses II Luxor reliefs KRI II 182:6. (IU)
113. Karpu. Ramesseum of Ramesses II: 5. (IU)
114. Kawir-Marruna. Ramesseum of Ramesses II: 8. Papyrus Anastasi I 22:3. (IU)
115. Kinnereth. Thutmose III Karnak list I: 34; Papyrus Leningrad 1116A vs: 69, 186.
116. Kiriath Anab. Karnak list of Seti I; Seti I Abydos list: A4; Ramesses II Luxor (left) list: 25; Papyrus Anastasi I 22:4; EA 256:26 Heni-Anabi?
117. Kiriath Nisan. Thutmose III Karnak list I: 11. (IU)
118. Kittim. Amarna Letter from Gezer, line 8. (IU)
119. Kumidi. Thutmose III Karnak list I: 8; EA 116, EA 185, EA 198.
120. Kamurim. Kom el-Hetan list of Amenhotep III: BN1 7. (IU)
121. Laban. Amara West list of Ramesses II: 93. (IU)
122. Lapan. Thutmose III Karnak list I: 10. EA 53. (IU)
123. Lachish/Lakish. Papyrus Leningrad 1116A vs:2; Lachish Bowl 3, obv 2 (possible Ramesside); EA 288, EA 238, etc.
124. Laish. Thutmose III Karnak list I: 31.
125. Lebo/Lebiw/Rebiw. Thutmose III Karnak list I: 82; Amenhotep II Memphis annals Urk IV 1304:5; Ramesses II Kadesh inscriptions KRI II 132:4; Split list of Seti I: B40.
126. Libnath. Medinet Habu list of Ramesses III (copy of Ramesses II Karnak list?): 71.
127. Lod. Thutmose III Karnak list.
128. Magarath. Thutmose III Karnak list I: 106. (IU)
129. Mahzibtu. EA 185. (IU)
130. Maqraput/Magraput. Thutmose III Karnak list I: 94. (IU)
131. Malihu. Kom el-Hetan list of Amenhotep III: BN1 13. (IU)
132. Mansutw/Mansuate. Amenhotep II Memphis annals Urk IV 1303:15. (IU)
133. Mapasin. Amenhotep II Memphis annals Urk IV 1305:8. (IU)

134. Maqad/Maqud. Thutmose III Karnak list I: 30. (IU)
135. Maroma. Thutmose III Karnak list I: 12; Ramesseum of Ramesses II: 12. (IU)
136. Maromim. Thutmose III Karnak list I: 85. Amenhotep II Luxor list: B16.
137. Maru/Marnu. Biography of Amenemheb Urk IV 893:7. (IU)
138. Mashkat Sanira. Karnak list of Ramesses II (left hypostyle): 26; Copied on Medinet Habu Ramesses III list.
139. Megiddo/Magida. Thutmose III Karnak list I: 2; Thutmose III Gebel Barkal Stele Urk IV 1234:17; Amenhotep II Memphis annals Urk IV 1308:11; Papyrus Leningrad 1116A vs: 68, 185; Papyrus Anastasi I 23:1; Wadi Abbad list of Seti I: 5; EA 242, 243, 244, 245; Taanach letter 5; Bogazkoy No. 86.
140. Migdal/Magdalu. Thutmose III Karnak list I: 71; Amenhotep II Memphis annals Urk IV 1307:5; EA 69, EA 70, EA 185; Ramesses II Karnak list (left hypostyle): 32; Copied on Medinet Habu list of Ramesses III.
141. Migdal/Magdalu. EA 256. (IU)
142. Meshta. EA 256. (IU)
143. Misha. Thutmose III Karnak list I: 39; Papyrus Leningrad 1116A vs: 73.
144. Muhazi. Thutmose III Karnak list I: 61; Muhazu EA 298. Split list of Seti I: A40. Amara West list of Ramesses II: 69; Ugaritic UT 2014:17, RS 19.42: 10.
145. Musuna. Thutmose III Karnak list I: 20; Kom el-Hetan list of Amenhotep III: BN1 5. (IU)
146. Musihuna/Mushihuna. Thutmose III Karnak list I: 25; EA 182, 183, 184. (IU)
147. Muta. Kom el-Hetan list of Amenhotep III: CN1 14. (IU)
148. Mutar. Luxor list of Ramesses II (left): 20, (right) 39. (IU)
149. Naaman. Thutmose III Karnak list I: 84; Split list of Seti I: B41.
150. Naun. Thutmose III Karnak list I: 75. (IU)
151. Naziba. EA 206. (IU)
152. Negeb. Thutmose III Karnak list I: 57; Kom el-Hetan list of Amenhotep III: A36.¹⁰¹ (IU)
153. Numan. Thutmose III Karnak list I: 83. (IU)

¹⁰¹ Possibly a region. However, it is mentioned before and after other cities, so possibly the name of a settlement (at least according to the Egyptians).

154. Nuribta. EA 365. (IU)
155. Nurpa. Thutmose III Karnak list I: 29. (IU)
156. Ono. Thutmose III Karnak list I: 65; Soleb list of Amenhotep III: 2B5.
157. Opher/Ofer. Thutmose III Karnak list I: 53, 54; Split list of Seti I: A32, A33.
158. Pehal/Pella. Thutmose III Karnak list I: 33; Soleb list of Amenhotep III: 9a1; Horemheb Karnak list: a13; Seti I el-Qurne (northern sphinx): 15; Ramesses II Karnak list: 26; Amara West list of Rameses II: 11; Papyrus Anastasi IV (Seti II) 16:11; EA 256 (Pihilu).
159. Qamhamu. Karnak list of Seti I: 53. El-Qurne list of Seti I: 18. Karnak list of Ramesses II: 30. (IU)
160. Qanu. Thutmose III Karnak list I: 26; Kom el-Hetan list of Amenhotep III: BNr 6; Amara West list of Ramesses II: 7; EA 204.
161. Qaus Asiru. Ramesses II Karnak reliefs: 8 KRI II 155:11. (IU)
162. Qedem/Kedem. Ugaritic text KTU 1.100:61.¹⁰² (IU)
163. Qeltu/Keilah. EA 279, EA 280.
164. Qisun/Qison. Thutmose III Karnak list I: 37.
165. Ranam. Thutmose III Karnak list I: 59; Split list of Seti I: A38. (IU)
166. Rapihu. Soleb list of Amenhotep III: a3; Seti I Karnak lists: 65, 67, and Seti map; Papyrus Anastasi I 27:7-8; Aksha list of Ramesses II: 90.
167. Rehob (Beth Rehob?). Soleb list of Amenhotep III: 3a1; Amara West list of Ramesses II: 7. (IU)
168. Rehob. Thutmose III Karnak list I: 87; Luxor list of Amenhotep II: B18; Seti I larger Beth Shean stele KRI I 12:10; Papyrus Anastasi IV 17:3; Tanaach/Taanakh letter 2:22.
169. Rubutu. Thutmose III Karnak list: 105. EA 289, EA 290. Tanaakh letter of Guli-Adad.
170. Rugizu. Thutmose III Karnak list I: 79; Luxor list of Amenhotep II: B10; Kom el-Hetan list of Amenhotep III: BN1 2; Split list of Seti I: B37; Ruhizzi of EA 53, EA 54, EA 191.
171. Rehema. Seti I Beth-Shean lesser stele KRI I 16:9. (IU)

¹⁰² Possibly north of Canaan.

172. Sarqu. EA 256. (IU)
173. Satuna. Ramesses II Luxor reliefs KRI II 176: 5. (IU)
174. Sharon. Thutmose III Karnak list I: 21; Papyrus Leningrad 1116A vs: 75, 185;
Kom el-Hetan list of Amenhotep III: BNr 11; EA 241 Sharuna. (IU)
175. Sharon Simuq. Kom el-Hetan list of Amenhotep III: BNr 12.¹⁰³
176. Sharuhén. Biography of Ahmose son of Ebana, reign of Ahmose I Urk IV 4:14;
Thutmose III annals Urk IV 648:5; Soleb list of Amenhotep III: 6a4; Amara West
list of Ramesses II: 67.
177. Shechem. Papyrus Anastasi I 21:6; EA 289.
178. Shemesh Adoma. Thutmose III Karnak list I: 51; Luxor list of Amenhotep II: B6;
Amenhotep II Memphis annals Urk IV 1302:1; Amenhotep II Karnak annals Urk
IV 1301:11.
179. Shunem. Thutmose III Karnak list I: 38; EA 250, EA 365.
180. Sidon/Siduna. Papyrus Anastasi I 28:8; Ugaritic KTU 1.14, Krt: 199; EA 118,
EA 148, EA 152, EA 154, EA 162, etc.
181. Sikar. Kom el-Hetan list of Amenhotep III: CN1 12.
182. Siruti/Siluti. Thutmose III Karnak list I: 108. (IU)
183. Soka/Soko. Thutmose III Karnak list I: 67; Amenhotep II Memphis annals Urk IV
1306:2; Soleb list of Amenhotep III: 7B3; Split list of Seti I: A19; Amara West list
of Ramesses II: 70, 91.
184. Sarha/Tsarha. EA 273.
185. Sayrruma/Tsayrruma. Papyrus Anastasi III vs 5:2. (IU)
186. Seror/Serer. Thutmose III Karnak list I: 115.
187. Sidiputu. Papyrus Anastasi I 22:5. (IU)
188. Sir/Siri-Bashani. Kom el-Hetan list of Amenhotep III: BN1 6. EA 201. (IU)
189. Shalema. Ramesseum of Ramesses II: 18.
190. Shamnu. Thutmose III Karnak list I: 18. (IU)
191. Shamuna/Shamuanu. Thutmose III Karnak list I: 35; Papyrus Leningrad 1116A
vs: 71, 188; Kom el-Hetan list of Amenhotep III: CN1 15; EA 225.
192. Shamshuna. Karnak list of Ramesses II: 22. (IU)

¹⁰³ Perhaps a satellite city of Sharon, or just reference to the city's vineyards.

193. Taanakh/Tanaach. Thutmose I Karnak list I: 42; Thutmose III annals Urk IV 650:10, 653:11; Papyrus Leningrad 1116A vs: 72, 189; EA 248.;Tanaakh letters.
194. Taya. Thutmose III Karnak list I: 74. (IU)
195. Teneni. Papyrus Leningrad 1116A vs: 76, 190; EA 260. (IU)
196. Tirqail/Terqa. Papyrus Anastasi I 22:8. (IU)
197. Tob/Tuby. Thutmose III Karnak list I: 22. EA 205.
198. Tubihu/Tubihi. Thutmose III Karnak list I: 6; Papyrus Anastasi I 19:1; EA 179. (IU)
199. Tuhitu. EA 179. (IU)
200. Tushulti. Thutmose III Karnak list I: 56; EA 185, EA 186; Split list of Seti I: A35. (IU)
201. Tyre. Soleb list of Amenhotep III: 10B2; El-Qurne lists of Seti I: 21; Luxor list of Ramesses II (right): 14; Papyrus Anastasi I 21:1; Papyrus Anastasi III vs 6:3; EA 149, EA 155.
202. Udumu/Edem/Adam. EA 256. (IU)
203. Ushtu. EA 185. (IU)
204. Usu.¹⁰⁴ Papyrus Anastasi I 21:1; El-Qurne (southern sphinx) Seti I: 22; Luxor list Ramesses II (right): 15; EA 148, EA 149, EA 150.
205. Yaanu. Papyrus Anastasi I 22:1. (IU)
206. Yabiluma. EA 256.
207. Yagadiya. Papyrus Anastasi I 18:7-8. (IU)
208. Yaham. Thutmose III Karnak list I: 68. Thutmose III annals Urk IV 649:3. Amenhotep II Memphis annals Urk IV 1305:17. Amenhotep II Karnak annals Urk IV 1314:17.
209. Yansati. Karnak list of Ramesses II: 2. (IU)
210. Yanoam/Yenoam. Thutmose III annals Urk IV 665:1, Urk IV 185:17, Urk IV 744:5; Kom el-Hetan list of Amenhotep III: BNr 2; Seti I Karnak relief KRI I 13:4; Seti I larger Beth-Shean stele KRI I 12:13; Seti I Karnak list: 52; Seti I Abydos list: A1; Luxor list Ramesses II: (right) 11, (left) 30; Merneptah Stele KRI IV 19:5-6; EA 197 (Yanuamma).

¹⁰⁴ Suburb of Tyre.

- 211. Yaqob el. Thutmose III Karnak list: 102. Karnak list of Ramesses II: 9. (IU)
- 212. Yarutu. Thutmose III Karnak list: 100. (IU)
- 213. Yashupil. Thutmose III Karnak list: 78; Luxor list of Amenhotep II: B9; Kom el Hetan list of Amenhotep III: BN1 1; Split reign of Seti I: B36. (IU)
- 214. Yursa/Yurza. Thutmose III annals Urk IV 846:6; Thutmose III Karnak list I: 60. EA 314-316; Split list of Seti I: A39.
- 215. Zaphon/Sapuna. Ramesseum of Ramesses II: 11.
- 216. Zarepath/Sarepta/Sarafand. UT 321: I, 46; Papyrus Anastasi I 20:8.
- 217. Zepath/Safita. Thutmose III annals Urk IV 650:11; Thutmose III Karnak list I: 116.
- 218. Zuhra. EA 337. (IU)

A total of 218 settlements, all believed to have been located within the boundaries of Canaan, are attested in Late Bronze Age documents. Out of the 218 settlements, 108 have not been identified with a particular archaeological site. While many of these unidentified 108 settlements may represent known Late Bronze Age sites for which an ancient name has not been confirmed or suggested, many doubtless represent settlements of the Late Bronze Age which have not yet been discovered archaeologically. These unidentified settlements can be utilized in conjunction with other data for estimating a figure for undiscovered sites and their population during the Late Bronze Age in Canaan.

CHAPTER 9

SETTLEMENTS OF LATE BRONZE AGE CANAAN AND THEIR ESTIMATED POPULATIONS

9.1 BACKGROUND INFORMATION FOR THE SETTLEMENT LIST

The lists of both archaeologically and textually attested sites in Late Bronze Age Canaan appearing in Chapter 8 are combined and expanded in the Chapter 9 list of Settlements in Late Bronze Age Canaan. This Chapter 9 list includes known or proposed ancient names of the sites, location and coordinates, periods occupied within the Late Bronze Age, site size when known, and site population estimate when possible, in addition to site type where appropriate. Calculations of approximate population estimates for each known Late Bronze Age settlement in Canaan allow examination of the range of settlement sizes, the extent of urbanism, differing regional settlement patterns, and the total settlement population for all of Canaan. With the addition of the estimated nomadic or non-sedentary population, an overall total for the population of Canaan during the Late Bronze Age can be proposed. If data for previous and subsequent periods is available, such as the Middle Bronze Age and the Iron Age, changes in population and settlement patterns over time may be discerned. By further dividing the settlements into eight regions of: 1) the Mediterranean Coastal region, 2) the Beqa Valley region, 3) the Hauran Plateau and Anti-Lebanon region, 4) Central Canaan region, 5) the Lake Kinnereth region, 6) Cisjordan region, 7) Transjordan region, and 8) the Southern Desert region, regional maps may be utilized, settlement differences noted, and trends in total population, density, and number of sites may be observed.¹⁰⁵

In order to calculate population estimates for each settlement, the methodology specified in Chapter 6 is utilized. The equation is summarized as (Total Site – Non Residential) / Insula Size x (Houses per insula x Family or Household Size) + (Population of Temples, Palaces, Garrison) x Urban/Village multiplier = Total Population

¹⁰⁵ These regions were delineated primarily by geography rather than political boundaries. Regions with similar names in other studies may not encompass the same area. However, because each site description contains GPS coordinates and the overlay map is able to be manipulated, the insertion of different regional boundaries or modification of the current boundaries can be done to suit specific studies.

Estimate of a specific settlement. For sites with massive ramparts or fortifications, that area is first subtracted from the site area to reach the useable “Total Site” figure. As a regional average, 85% of the site area (after the subtraction of ramparts or massive fortifications) for residential districts is used on sites of 10 hectares and above, while 80% is used on sites under 10 hectares to allow for lower structural density. The additional use of an unbounded village multiplier of 0.67 applied to the density is used for less than 2 hectare sites which appear to be unwalled or unbounded villages. Unwalled sites less than 0.5 hectares are considered “farmsteads” in which a maximum of 2 or 3 families may have lived, with an average of 15 people total. Walled sites less than 0.5 hectares are considered “outposts” in which a small military garrison may have been stationed, or if near a city, chariots stored, with an average of 50 people total. Sites which were used only in a religious capacity are considered to have had no permanent population and are designated (S) for “shrine.” Sites which appear to have been used only for burials during the Late Bronze Age are designated (C) for “cemetery.” While some of the smallest sites may have been materials left behind by nomads, others may have been the remains of small settlements ranging from Farmsteads to Villages. Thus, the smallest sites that have no size data have a designated “Unknown” population, which may have been a small settlement or merely a temporary site. Sites designated (U) are “underwater sites” with Late Bronze Age remains, often connected to an adjacent site on land. Sites designated (T) for “textual” are attested as Late Bronze Age settlements only by texts from the period, but their existence is sure and location is generally known. The designation “N/A” indicates that the site division or type is not available due to lack of data about the site size and nature of the site. The usage of “Unknown” in the context of the site population applies to sites in which a calculated population estimate was not possible, although in some cases a tentative general estimate would be possible if Late Bronze Age occupation were assumed across the entire measured site.

- 85% of site area (after fortification reduction) for residential districts on sites of 10 hectares and above. 80% of site area under 10 hectares.
- Unbounded village multiplier of 0.67 applied to the density for less than 2 hectare sites appearing to be unwalled or unbounded villages.

- Unfortified sites less than 0.5 hectares considered “farmsteads” with an average of 15 people.
- Fortified sites less than 0.5 hectares considered “outposts” in which a small military garrison may have been stationed or chariots stored, with an average of 50 people total.
- Sites used only in a religious capacity designated (S) for “shrine” with temporary population.
- Sites only for burials designated (C) for “cemetery” and had no population.
- Sites lacking size data referred to as population “Unknown.” Perhaps small settlements, temporary sites, occasionally villages, or in rare cases a town or city.
- Underwater sites designated (U), often connected to an adjacent site on land.
- Sites attested only textually designated (T). Existence sure and location generally known.
- Designation “N/A” indicates site division and type not available due to lack of data.

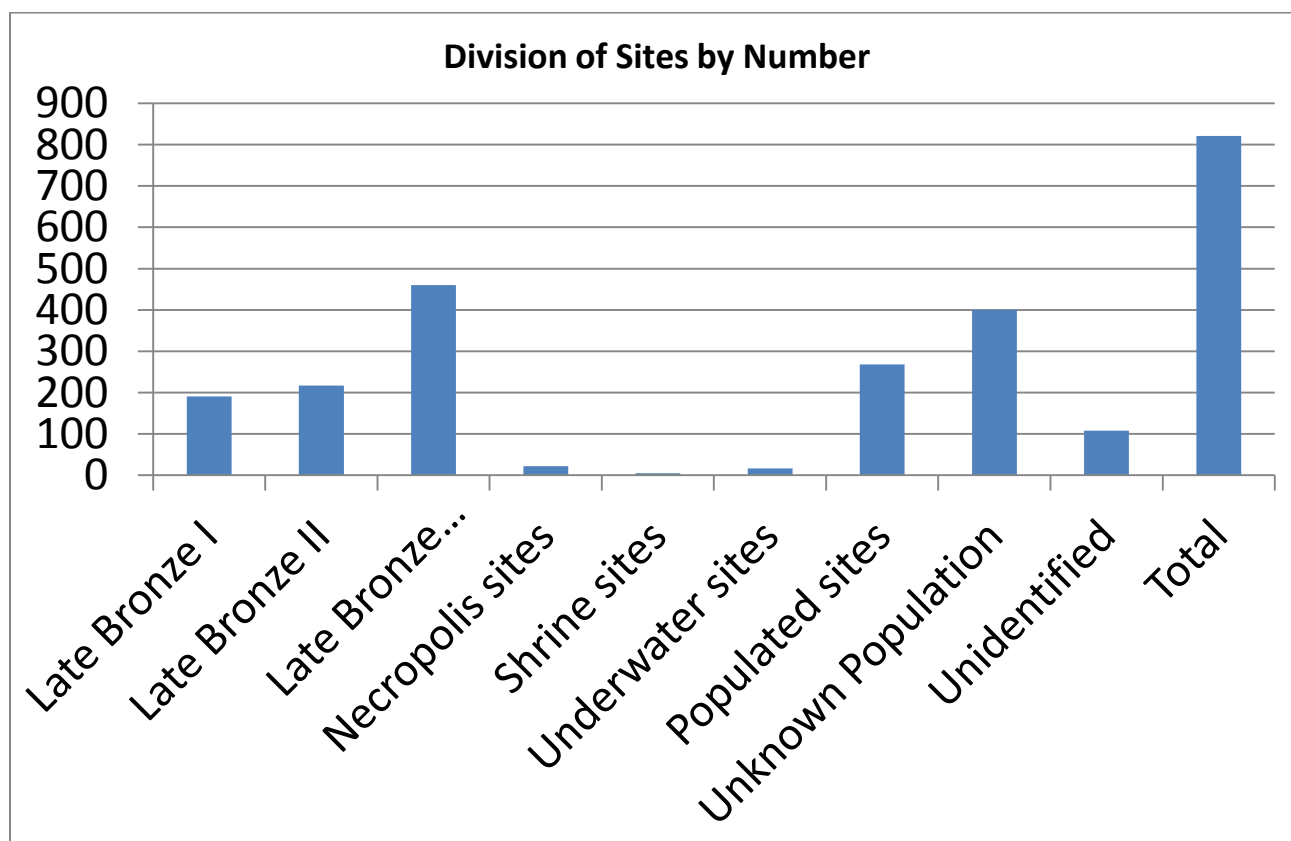
The master settlement list is in alphabetical order for the ease of locating a particular settlement, and it contains sites listed in both the archaeological and textual Late Bronze Age site lists in Chapter 8. Since a distinction should be made between archaeological occupational material and textual attestation, two preliminary lists were made in order to display the differences and similarities between archaeological site evidence and textual evidence. Each site is listed by the most or one of the most utilized site names with alternate names also noted. The ancient name, if known, or a proposed identification follows with reference to the ancient documents attesting that name. The period or periods of occupation within the Late Bronze Age, Late Bronze I and Late Bronze II are listed next, if specifically known.¹⁰⁶ If only general occupation within the Late Bronze Age is known, the designation LB is used. The overall site size is then listed and any necessary reduction of the mound or ramparts to the inhabited or habitable site size, followed by the percentages of site division into residential and other.¹⁰⁷ Next, the total insulae in the residential district are calculated based on the

¹⁰⁶ The designations LB, LB I, and LB II are used for Late Bronze Age, Late Bronze I, and Late Bronze II.

¹⁰⁷ Other is an all encompassing category for non-residential space such as administrative, religious, and public areas of the site which includes palaces, temples, gates, and large roads. The useable site reduction may be due to massive

methodology in Chapter 6 and the residential size of the site, allowing an estimated total residential population to be calculated. In addition to the residential population, palace, garrison, and temple populations are estimated based on the number of palaces, temples, and a proposed garrison population based on the size of the city or garrison sizes noted in the Amarna Letters. These population numbers are added together to obtain a total site population, which is also divided by the total site size for a site population density. For certain settlements which are attested in Late Bronze Age documents but are lacking archaeological data that allow size and population estimates, a tentative population estimate may be inferred from similar sites attested both textually and archaeologically that have a calculated population estimate. Finally, cumulative population totals for the peak of the Late Bronze Age, all Late Bronze I sites, and all Late Bronze II sites are given.

Graph 9.1 Known Division of Sites in Late Bronze Age Canaan¹⁰⁸



fortifications, a rampart, or the publication measurement including the slopes of the mound when no evidence for building on the slopes is apparent at the particular site in the Late Bronze Age.

¹⁰⁸ Refer to section 9.3 Conclusions and Totals for Late Bronze Age Settlement Population for a discussion of these figures.



Figure 9.1 Settlement Regions of Canaan. Google Earth image digitally manipulated by Titus Kennedy.

9.2 SETTLEMENT LIST AND POPULATION ESTIMATES

1) Site: Abhariya, Khirbet

Ancient name:

Location: Central Canaan region. 32.542639,35.066517

Period(s): LB (Bunimovitz 1989: 124).

Site size: 0.2 hectares? (GIS).

Fortification reduction: None

Site division: Farmstead

Total insulae in residential district: None

Estimated total residential population: 15

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

2) Site: Abel Beth Maacah, Tel/Tell Abil el-Qamh

Ancient name: Abel? (Thutmose III Karnak list I: 92; Abel Beth Maacah? Joshua 13:11).

Location: Lake Kinnereth region. 33.258104,35.580786

Period(s): LB (Goren 2004: 348).¹⁰⁹

Site size: 14 hectares (Dever 1986: 217).¹¹⁰

Fortification reduction: 10% mound reduction (12.6 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 224

Estimated total residential population: 8,064

Palace population: 20?

¹⁰⁹ An updated and expanded report mentioning the Late Bronze Age is available through the excavation website (<http://www.abel-beth-maacah.org/index.php/2012-survey/report-2012>).

¹¹⁰ Entire site may have been up to 30 hectares (GIS).

Garrison population:

Temple population: 5?

Estimated total maximum site population: 8,050 (rounded)

Overall site population density: 575 people per hectare

3) **Site: Abila. Tell Qweilbeh.**

Ancient name: Abila. Yabiluma (EA 256).

Location: Transjordan region. 32.6811, 35.8697

Period(s): LB I, LB II (Kafafi 1984: 12-13; MEGA 2762).

Site size: 6.1 hectares mound top (GIS)

Fortification reduction: None additional

Site division: 80% residential, 20% other

Total insulae in residential district: 102 (306 housing units)

Estimated total residential population: 3,672

Palace population: 50?

Garrison population: 200?

Temple population: 5?

Estimated total maximum site population: 3,900 (rounded from 3,927)

Overall site population density: 644 people per hectare (total site density considerably lower)

4) **Site: Adami, Tell**

Ancient name: Adami-Haneqeb? (Joshua 19:33).

Location: Central Canaan region. 32.749, 35.461

Period(s): LB (Aharoni 1979: 177)

Site size: 1.0 hectares at top of mound (GIS)

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 550 (rounded from 576)

Overall site population density: 550 people per hectare

5) Site: Adas, Tell. Tel Adashim. Horvat Adashim.

Ancient name:

Location: Central Canaan region. 32.6383, 35.3082

Period(s): LB (Goren 2004: 354).

Site size: 1.1 hectares (DAAHL site 353202514)

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 434 (0.67 village multiplier x 648)

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 400 (rounded from 434)

Overall site population density: 400 people per hectare

6) Site: Afula, Tel.

Ancient name: Opher/Apr (Thutmose III Karnak list I: 53, 54. Split list of Seti I: A32, A33).¹¹¹

Location: Central Canaan region. 32.6013, 35.2847.

Period(s): LB II (Feig 2012; DAAHL site 353202516). LB I? (Thutmose III Karnak list I: 53, 54).

Site size: 3.0 hectares LB II (Feig 2012). LB I 2.4 hectares? (DAAHL site 353202516).¹¹²

¹¹¹ Perhaps great and small Opher matching with the twin mounds of Tel Afula.

Fortification reduction: 10% mound reduction to 2.7 hectares.

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: LB II 1,600 (rounded from 1,620). LB I 1,250?

Overall site population density: 533 people per hectare

7) Site: Afrin, Tel.

Ancient name:

Location: Central Canaan region. 32.446048,34.991160.

Period(s): LB (Bunimovitz 1989: 128).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

8) Site: Agra, Tel. Tell el Agra/Aqra.

Ancient name: Unknown

¹¹² Twin mounds perhaps covered more area in antiquity. LB I estimation is based on recorded MB III size, as LB I size is not given.

Location: Central Canaan region. 31.5016, 34.8733.

Period(s): LB (IAA site 1166/0; DAAHL site 343100011).

Site size: 2 hectares top of mound (GIS; DAAHL site 343100011).¹¹³

Fortification reduction: None additional

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 1,188

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,150 (rounded from 1,188)

Overall site population density: 575 people per hectare (top of mound, not entire site surface)

9) Site: Ahuzza, Nahal (U)

Ancient name: Unknown

Location: Mediterranean Coastal region

Period(s): LB

Site size: N/A hectares

Fortification reduction: N/A

Site division: N/A

Total insulae in residential district: N/A

Estimated total residential population: N/A

Palace population: N/A

Garrison population: N/A

Temple population: N/a

Estimated total maximum site population: N/A

Overall site population density: N/A

¹¹³ DAAHL site record measured outside of the base of the mound at 9 hectares.

10) Site: Ain Abda, Tell.

Ancient name: Unknown

Location: Transjordan region.

Period(s): LB I (Fischer 1999: 2), LB II?¹¹⁴

Site size: N/A hectares

Fortification reduction: N/A

Site division: N/A

Total insulae in residential district: N/A

Estimated total residential population: N/A

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: N/A

Overall site population density: N/A

11) Site: Ain Ahle, Tell.

Ancient name: Unknown

Location: Beqa Valley region. 34.13977, 36.28449.

Period(s): LB I, LB II (Marfoe 1995: 266-67; DAAHL site 363400358).

Site size: 1.2 hectares (GIS)

Fortification reduction: 10% mound (1.0 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 550 (rounded from 576)

Overall site population density: 550 per hectare

¹¹⁴ For LB II occupation, see http://www.fischerarchaeology.se/?page_id=92

12) Site: Ain Avazim.

Ancient name: Unknown

Location: Lake Kinnereth region. 33.158025,35.571521.

Period(s): LB (Ilán 1999: 164)

Site size: Less than 0.5 hectares

Fortification reduction: N/A

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: N/A

13) Site: Ain Azzaziat, Tell.

Ancient name: Unknown

Location: Lake Kinnereth region. 33.227703, 35.668463.

Period(s): LB (Ilán 1999: 164).

Site size: 2.7 hectares (GIS) top of mound

Fortification reduction: None additional

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,600 (rounded from 1,620)

Overall site population density: 592 people per hectare

14) Site: Ain Dor, Horvat. Khirbet es Safsafah. Horvat Zafzafot.

Ancient name: Ain Dor/En Dor? (Joshua 17:11).

Location: Central Canaan region. 32.639664, 35.376316.

Period(s): LB (IAA site 3287/0; Gal 1998: 67).

Site size: 5 hectares? (GIS).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 83

Estimated total residential population: 2,988

Palace population: 50?

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 3,000 (rounded from 3,038)

Overall site population density: 600 people per hectare

15) Site: Ain el Araia. Ain Livluf.

Ancient name: Unknown

Location: Central Canaan. 32.565197, 35.081390.

Period(s): LB (IAA site 2287/0).

Site size: 0.2 hectares? (GIS).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

16) Site: Ain es Saouda, Tell.

Ancient name: Unknown

Location: Beqa Valley region. 33.99798, 36.09943.

Period(s): LB I, LB II expansion (Marfoe 1995: 243-44; DAAHL site 363300253).

Site size: 1.2 hectares (GIS)

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 20

Estimated total residential population: 482 (0.67 village multiplier x 720)

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 450 (rounded from 482)

Overall site population density: 375 people per hectare

17) Site: Ain Hadda, Tel.

Ancient name: Unknown

Location: Lake Kinnereth region. 32.685331, 35.489653.

Period(s): LB (IAA site 3512/0; Gal 1992: 33).

Site size: 1.3 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 21

Estimated total residential population: 756

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 750 (rounded from 756)

Overall site population density: 577 people per hectare

18) Site: Ain Ha Yadid.

Ancient name: Unknown

Location: Cisjordan. 32.590097, 35.525520.

Period(s): LB (Gal 1991: 54-55).

Site size: 0.3 hectares? (Goren 2004: 341; DAAHL site 353202646)

Fortification reduction: None

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 50 people per hectare

19) Site: Ain Khanziri, Tell.

Ancient name: Unknown

Location: Beqa Valley. 33.72301, 35.908887.

Period(s): LB II (Marfoe 1995: 217-218; DAAHL site 353301109)

Site size: 2.5 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 42

Estimated total residential population: 1,512

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,500 (rounded from 1,512)

Overall site population density: 600 people per hectare

20) Site: Ain Samiya. Khirbet Samiyye. (C)

Ancient name: Unknown

Location: Cisjordan. 31.988395, 35.334079.

Period(s): LB II (Shalev 2004: 17; DAAHL site 353106679)

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

21) Site: Ain Sofar, Tell.

Ancient name: Unknown

Location: Beqa Valley. 33.82376, 35.90818.

Period(s): LB I, LB II (DAAHL site 353301114; Marfoe 1995: 231)

Site size: 2 hectares? (GIS; DAAHL site 353301114).

Fortification reduction: 10% mound reduction (1.8 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

22) Site: Ain Taruq, Khirbet.

Ancient name: Unknown

Location: Lake Kinnereth region. 32.8091, 35.8123.

Period(s): LB (Thompson 1979: 113; IAA site 4121/0).

Site size: 1.3 hectares (GIS)

Fortification reduction: None additional.

Site division: 80% residential, 20% other

Total insulae in residential district: 21

Estimated total residential population: 506 (0.67 village multiplier x 756)

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 500 (rounded from 506)

Overall site population density: 385 people per hectare

23) Site: Ain Yarad.

Ancient name: Unknown

Location: Central Canaan region. 31.856170, 34.932305.

Period(s): LB (Shavit 1992: 97-98).

Site size: 1.0 hectares? (Goren 2004: 342)

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 386 (0.67 village multiplier x 576)

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 350 (rounded from 386)

Overall site population density: 350 people per hectare

24) Site: Aiyadiya, Khirbet.

Ancient name: Unknown

Location: Central Canaan region. 32.913081, 35.151376.

Period(s): LB I, LB II (Getzov 1993: 20)

Site size: 4.5 hectares site, 1 hectare mound (Lehmann and Peilstocker 2012: 38)

Fortification reduction: 10% mound (0.9 hectares, 4.4 hectares total)

Site division: 80% residential, 20% other

Total insulae in residential district: 73

Estimated total residential population: 2,628

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 2,600 (rounded from 2,628)

Overall site population density: 578 people per hectare

25) Site: Ajjul, Tell el.

Ancient name: Sharuhēn?¹¹⁵ (Biography of Ahmose son of Ebana, reign of Ahmose I Urk IV 4:14. Thutmose III annals Urk IV 648:5. Soleb list of Amenhotep III: 6a4. Amara West list of Ramesses II: 67. Joshua 19:6)

Location: Mediterranean Coastal region. 31.466547, 34.403395.

Period(s): LB I, LB II decline (Petrie 1931: 5-10; Tufnell 1993: 52; Kempinski 1993: 53; http://www.fischerarchaeology.se/?page_id=78; http://www.fischerarchaeology.se/?page_id=70)

Site size: 13 hectares (Tufnell 1993: 49; DAAHL site 343100139; GIS).

Fortification reduction: 10% mound slope reduction (11.7 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 208

Estimated total residential population: 7,488 (LB I)

¹¹⁵ Also see Tell el Farah (South)/Tel Sharuhēn

Palace population: 50?

Garrison population: 50-200?

Temple population: 0?

Estimated total maximum site population: 7,700 LB I (rounded from 7,738). Fort of 50 in LB II?

Overall site population density: 592 people per hectare

26) Site: Ajjuri, Khirbet. Khirbet Duheisha. Gealya.

Ancient name: Unknown

Location: Mediterranean Coastal region. 31.881154, 34.76951.

Period(s): LB (IAA site 868/0)

Site size: unknown hectares

Fortification reduction: N/A

Site division: N/A (Farmstead?)

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15?

Overall site population density:

27) Site: Akhziv, Tel. Tel Achzib. Tell Zib.

Ancient name: Akzyb (Joshua 15:44; Judges 1:31).

Location: Mediterranean Coastal region. 33.048278, 35.102432.

Period(s): LB I, LB II (Thompson 1979: 69; IAA site 2375/0; DAAHL site 353300049).

Site size: 7 hectares (DAAHL site 353300049). Also Akhziv underwater site (IAA site 4399/0).¹¹⁶

¹¹⁶ The discovery of underwater Late Bronze Age remains indicates that the city and coastline extended further west, meaning the total city size and population may have been even higher.

Fortification reduction: 10% mound reduction (6.3 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 105

Estimated total residential population: 3,780

Palace population: 50 ?

Garrison population: 0 ?

Temple population: 5 ?

Estimated total maximum site population: 3,800

Overall site population density: 543 people per hectare

28) Site: Akhziv. (U).

Ancient name: Akzyb (Joshua 15:44; Judges 1:31).

Location: Mediterranean Coastal region. 33.048278, 35.102432.

Period(s): LB (IAA site 4399/0)

Site size: hectares¹¹⁷

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

29) Site: Akko. Akka. Tell el Fukhar.

Ancient name: Akka (EA 49, EA 234, EA 366; Aphek Letters; Judges 1:31).

Location: Mediterranean Coastal region. 32.918836, 35.082251.

¹¹⁷ Considered part of original Tel Akhziv.

Period(s): LB I, LB II (Thompson 1979: 89; Akko Persian Garden IAA site 2369/0; DAAHL site 353202648).

Site size: 23 hectares (DAAHL site 353202648). Also underwater findings (Fliner, Linder, and Hall 1993: 213-225).¹¹⁸

Fortification reduction: 10% mound (20.7 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 347

Estimated total residential population: 12,492

Palace population: 50 ?

Garrison population: 200 ?

Temple population: 5 ?

Estimated total maximum site population: 12,700 (rounded from 12,747)

Overall site population density: 552 people per hectare

30) Site: Al, Khirbat.

Ancient name: Unknown

Location: Transjordan. 31.8189, 35.8280.

Period(s): LB (MEGA 9141)

Site size: 0.8 hectares? (GIS)

Fortification reduction: N/A

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 385 (0.67 village multiplier x 576)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350

Overall site population density: 438 people per hectare

¹¹⁸ The harbor and the city extended farther out into the water, as the water level has risen above some structures and decreased the amount of the ancient city above water. This suggests the Late Bronze Age city would have had an even larger population.

31) Site: Ala Safat. (C)

Ancient name: Unknown

Location: Transjordan. 32.0572, 35.5703

Period(s): LB (MEGA 9468)

Site size: Cemetery

Estimated total maximum site population: 0

32) Site: Alil, Tell. Khirbet Ras Ali.

Ancient name: Unknown

Location: Central Canaan region. 32.772409, 35.155731.

Period(s): LB (Gal 1992: 21; Thompson 1979: 106; IAA site 2586/0).

Site size: 9 hectares? (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 151

Estimated total residential population: 5,436

Palace population: 50 ?

Garrison population: 0 ?

Temple population: 5 ?

Estimated total maximum site population: 5,450

Overall site population density: 606 people per hectare

33) Site: Aliya, Khirbet. Khirbet Ali.

Ancient name: Unknown

Location: Central Canaan. 31.715587, 34.985467.

Period(s): LB (Dagan 1993: 95; IAA site 1861/0)

Site size: Unknown

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

34) Site: Allon, Horvat. Ras en Nabi. Khirbet Zarrah. Khirbet Zarra. Wadi esh Shallala.

Ancient name:

Location: Mediterranean Coastal region. 32.7243, 35.0261.

Period(s): LB (IAA site 2113/0)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

35) Site: Aname

Ancient name: Unknown

Location: Transjordan. 32.236118, 35.875272.

Period(s): LB I, LB II (MEGA 6652)

Site size: Unknown hectares

Fortification reduction: N/A

Site division: Unknown

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

36) Site: Amman, Jebel Nuzha. Rabbah?

Ancient name: Rabbah? (Joshua 13:25)

Location: Transjordan. 31.962, 35.932

Period(s): LB I, LB II (Van der Steen 2004: 142. MEGA 6568).

Site size: Unknown hectares. One site with Amman Citadel (Van der Steen 2004: 144)?

Fortification reduction: N/A

Site division: Unknown

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 10,000?

Overall site population density:

37) Site: Amman Temple Marka Airport (S)

Ancient name: Unknown

Location: Transjordan. 31.972, 35.982

Period(s): LB I, LB II (Van der Steen 2004: 140-141; Fischer 1999:22; Dornemann 1983: 22; MEGA 6491)

Site size: N/A

Fortification reduction: N/A

Site division: Shrine

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population: Temporary ?

Estimated total maximum site population: 0

Overall site population density: N/A

38) Site: Ammata, Tell.

Ancient name:

Location: Transjordan. 32.239453, 35.618678

Period(s): LB I, LB II (Van der Steen 2004: 217-218; MEGA 9512)

Site size: Unknown hectares (site destroyed)

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

39) Site: Ana, Kafr.

Ancient name: Ono? (Thutmose III Karnak list I: 65. Soleb list of Amenhotep III: 2B5).

Location: Central Canaan region. 32.025651, 34.868671

Period(s): LB (Peilstocker and Burke 2011: Figure 7.1).

Site size: hectares

Fortification reduction: N/A

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

40) Site: Anab el Kabir, Khirbet. Khirbet Anab el Kebireh.

Ancient name: Anab? (Joshua 11:21).

Location: Southern Desert region. 31.39429, 34.926769.

Period(s): LB (DAAHL site 343101566).

Site size: Unknown hectares

Fortification reduction: N/A

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

41) Site: Anafa, Tel. Tell Akhdar.

Ancient name: Unknown

Location: Central Canaan region. 33.176851, 35.547825.

Period(s): LB (IAA site 28121/0).

Site size: 0.7 hectares (DAAHL site 353300015).

Fortification reduction: None additional

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 265 (0.67 multiplier x 396).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 250 (rounded from 265).

Overall site population density: 357 people per hectare

42) Site: Aphek. Tel Aphek. Aphek-Antipatris. Tell Ras el-Ain.

Ancient name: Aphek. (Thutmose III Karnak List: 66. Amenhotep II annals Urk IV 1305: 15. Joshua 12:18).

Location: Central Canaan region. 32.8477, 35.1101

Period(s): LB I, LB II (Beck, Pirhiya, and Kochavi 1985: 50). LB II expansion.

Site size: 12 hectares (Kochavi 2000: 3)

Fortification Reduction: 10.8 hectares (1.2 hectares reduction of mound)

Site division: 50% residential 50% military (fortress according to Beck and Kochavi 1985: 50)

Total insulae in residential district: 113 (339 housing units)

Estimated total residential population: 4,068

Palace population: 50?

Garrison population: 200?

Temple population: 0?

Estimated total maximum site population: 4,300 (rounded from 4,318) LB II. Perhaps 2,000 LB I?

Overall site population density: 398 people per hectare

43) Site: Ara (Old School).

Ancient name: Unknown

Location: Central Canaan region.

Period(s): LB (IAA site 7119/0).

Site size: Unknown hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

44) Site: Arah, Khirbet. Wadi Arah.

Ancient name: Aruna? (Thutmose III annals Urk IV 650: 6, 651:6, 652: 14, 654: 6 and 7).

Location: Central Canaan region. 32.492244, 35.052044

Period(s): LB I, LB II (Zertal and Mirkam 2000: 104-108).

Site size: Unknown hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

45) Site: Arbaein, Tall el. Arbain.

Ancient name: Unknown

Location: Transjordan. 32.519311, 35.590536.

Period(s): LB (MEGA 2854).

Site size: 3.5 hectares (GIS)

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 58

Estimated total residential population: 2,088

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,050 (rounded from 2,088)

Overall site population density: 586 people per hectare

46) Site: Areini, Tell. Tel Erani.

Ancient name:

Location: Central Canaan region. 31.612236, 34.786574

Period(s): LB II (IAA site 6091/0; DAAHL site 343100170).

Site size: 2.0 hectares (DAAHL site 343100170).

Fortification reduction: 10% mound reduction (1.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,050 (rounded from 1,080)

Overall site population density: 525 people per hectare

47) Site: Ardon, Tell. Khirbet Abda.

Ancient name: Unknown

Location: Central Canaan region. 33.047792, 35.162233.

Period(s): LB (Thompson 1979:72).

Site size: 2.7 hectares (GIS; Thompson 1979:72).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,600 (rounded from 1,620)

Overall site population density: 593 people per hectare

48) Site: Argadat, Tell el.

Ancient name:

Location: Transjordan. 32.174704, 35.584008.

Period(s): LB (Van der Steen 2004: 185; MEGA 4592)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

49) Site: Aris, Wadi el. Ain Shibli. Tell Naqb el Arayis.

Ancient name:

Location: Cisjordan region. 32.23655, 35.42161.

Period(s): LB (DAAHL site 353204154).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

50) Site: Arshaf, Tel. Arsuf. Apollonia. (U).

Ancient name:

Location: Mediterranean Coastal region. 32.19991, 34.800779

Period(s): LB (IAA site 26762/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

51) Site: Artal, Tel. Tell Sheikh Daud.

Ancient name:

Location: Cisjordan. 32.462159, 35.561316.

Period(s): LB (Zori 1962: 156; IAA site 23837/0).

Site size: 0.2 hectares (DAAHL site 353202254).

Fortification reduction:

Site division: Farmstead?

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

52) Site: Artusah, Khirbet.

Ancient name:

Location: Lake Kinneret region.

Period(s): LB (Liebowitz 2003: Plan 1.2).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

53) Site: Ar Ras. (C)

Ancient name:

Location: Central Canaan region. 32.15971, 35.281067.

Period(s): LB (Thompson 1979: 72).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

54) Site: Asawir, Tell el. Tel Esur.

Ancient name:

Location: Central Canaan region. 32.481827, 35.019703.

Period(s): LB I, LB II (DAAHL site 353202177; Goren 2004: 345).

Site size: 3.0 hectares (DAAHL site 353202177).

Fortification reduction: 10% mound reduction (2.7 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,600 (rounded)

Overall site population density: 533 people per hectare

55) Site: Ashan, Horvat.

Ancient name:

Location: Lake Kinneret region. 33.180511, 35.589842.

Period(s): LB (Goren 2004: 347)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

56) Site: Ashari, Tell el.

Ancient name: Dia? (Kom el-Hetan list of Amenhotep III: BN1 8).

Location: Hauran Plateau and Anti-Lebanon region. 32.743365, 36.014255.

Period(s): LB (DAAHL site 363201054; Stubbings 1951: 83).

Site size: 4.5 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 2,700

Overall site population density: 600 people per hectare

57) Site: Ashdod. Tell Ashdod.

Ancient name: Ashdod. (Ugaritic UT 311:3. UT 2014, UT 2095:9; Elitzur 2004: 105).

Location: Mediterranean Coastal region. 31.75595, 34.658183

Period(s): LB I, LB II (Ben-Shlomo 2005: 2; IAA site 563/0; DAAHL site 343100144).

Site size: 23.0 hectares (Ben-Shlomo 2005: 2; DAAHL site 343100144; GIS).

Fortification reduction: 10% mound (20.7 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 368

Estimated total residential population: 13,248

Palace population: 50 ?

Garrison population: 200 ?

Temple population: 15 ?

Estimated total maximum site population: 13,500 (rounded from 13,513).

Overall site population density: 586 people per hectare

58) Site: Ashdod, Holot

Ancient name:

Location: Mediterranean Coastal region. 31.757437, 34.64186.

Period(s): LB (IAA site 16940/0)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown (part of Ashdod?)

Overall site population density:

59) Site: Ashdod Soutren Beach

Ancient name:

Location: Mediterranean Coastal region.

Period(s): LB (IAA site 26258/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown (part of Ashdod?)

Overall site population density:

60) Site: Ashkelon. Tell Ashkelon.

Ancient name: Ashkelon (Papyrus Leningrad 1116A vs 76, 186 from Amenhotep II. Soleb list of Amenhotep III: 7a5. Merneptah Stele KRI IV 19:5. EA 320-326; Judges 1:18).

Location: Mediterranean Coastal region. 31.662582, 34.54779.

Period(s): LB I, LB II expansion and higher density (Stager et al. 2008: 4, 215-217, 251; DAAHL site 343100151)

Site size: 62 hectares or more (GIS; Stager et al. 2008: 4, 215-217, 251).¹¹⁹

Fortification reduction: Rampart (42 hectares).¹²⁰

Site division: 85% residential, 15% other

Total insulae in residential district: 748

Estimated total residential population: 26,928

Palace population: 50 ?

Garrison population: 400 ?

Temple population: 15 ?

¹¹⁹ Underwater sites suggest the city expanded out into the ocean, adding to the overall area.

¹²⁰ Estimated via GIS measurement.

Estimated total maximum site population: 27,350 (rounded from 27,393) LB II.
20,000 LB I?

Overall site population density: 441 people per hectare

61) Site: Ashkelon Underwater Sites. (U)

Ancient name:

Location: Mediterranean Coastal region

Period(s): LB (IAA site 21998/0, 22000/0, 26756/0, 26758/0, 26760/0 etc.).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown (part of Ashkelon)

Overall site population density:

62) Site: Ashtaroth. Ashtarah, Tell.

Ancient name: Ashtaroth (Thutmose III Karnak List I: 28. Split list of Seti I: 8. Kom el-Hetan list of Amenhotep III: BN1 9. EA 197, EA 256; Joshua 9:10).

Location: Hauran and Anti-Lebanon region. 32.804076, 36.015425.

Period(s): LB I, LB II (Thompson 1979: 114; DAAHL site 363201055).

Site size: 7.4 hectares (10 hectares total mound)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 124

Estimated total residential population: 4,464

Palace population: 50 ?

Garrison population: 200 ?

Temple population: 10 ?

Estimated total maximum site population: 4,700 (rounded from 4,724)

Overall site population density: 470 people per hectare

63) Site: Asiyeh, Tell.

Ancient name:

Location: Transjordan region. 32.169964, 35.603674.

Period(s): LB I, LB II (Van der Steen 2004: 225; MEGA 9485).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

64) Site: Askar, Tell el.

Ancient name:

Location: Central Canaan. 31.880573, 35.280819

Period(s): LB (IAA site 13867/0).

Site size: 1.2 hectares (Finkelstein and Magen 1993: 37).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 20

Estimated total residential population: 482 (0.67 village multiplier x 720)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 450 (rounded from 482)

Overall site population density: 375 people per hectare

65) Site: Ateret, Tel.

Ancient name:

Location: Lake Kinnereth region. 33.004363, 35.62777.

Period(s): LB (Goren 2004: 347).

Site size: 1.0 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550 (rounded from 576)

Overall site population density: 550 people per hectare

66) Site: Atlit, Tel. Salt Island. (U)

Ancient name: Kartah? (Joshua 21:34)

Location: Mediterranean Coastal region. 32.70133, 34.932101

Period(s): LB (Thompson 1979: 116; IAA site 14109/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

67) Site: At Tall. Bethsaida.

Ancient name:

Location: Lake Kinnereth region. 32.910289, 35.630697.

Period(s): LB (Thompson 1979: 96; Albright 1928: 7).

Site size: 2.0 hectares (DAAHL site 353202262).

Fortification reduction: 10% mound reduction (1.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,050 (rounded from 1,080)

Overall site population density: 525 people per hectare

68) Site: Attaisi, Khirbet.

Ancient name:

Location: Mediterranean Coastal region. 32.788591, 34.995013.

Period(s): LB (Bunimovitz 1989: 124; IAA site 17285/0; Thompson 1979: 102).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

69) Site: Avinadav, Nahal.

Ancient name:

Location: Cisjordan region. 32.449358, 35.443299.

Period(s): LB (IAA site 5456/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

70) Site: Ayanot.

Ancient name:

Location: Central Canaan region. 31.913492, 34.77014.

Period(s): LB (Goren 2004: 343).

Site size: 0.2 hectares (DAAHL site 343100159).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

71) Site: Ayit, Khirbet. Khirbet Aitawiya.

Ancient name:

Location: Mediterranean Coastal region. 32.861247, 35.146996.

Period(s): LB (Thompson 1979: 91; IAA site 2589/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

72) Site: Ayun Horeak, Khirbet. El Ayun.

Ancient name:

Location: Lake Kinnereth region. 32.718356, 35.658315

Period(s): LB (Liebowitz 2003: 2; IAA site 3889/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

73) Site: Ayyun, Tell el.

Ancient name:

Location: Beqa Valley region. 34.160975, 36.274011

Period(s): LB (Marfoe 1995: 264-65).

Site size: 1.0 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550

Overall site population density: 550 people per hectare

74) Site: Azeqah. Azeka, Tel. Tell Zakariya

Ancient name: Azeqah (Joshua 10:10)

Location: Central Canaan region. 31.699961, 34.935648.

Period(s): LB I, LB II (DAAHL site 343100017).¹²¹

Site size: 2.8 hectares (GIS; DAAHL site 343100017).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 47

¹²¹ Also personal communication with the excavators during the 2013 season, who stated that new Late Bronze Age material was found in areas all over the mound. Late Bronze II may be more prolific. However, excavations have not gone deep enough to confirm or deny this.

Estimated total residential population: 1,692

Palace population: 20

Garrison population: 0

Temple population: 5

Estimated total maximum site population: 1,700 (rounded from 1,717) LB II. 1,000

LB I?

Overall site population density: 607 people per hectare

75) Site: Azor. Yazur.

Ancient name:

Location: Mediterranean Coastal region. 32.022686, 34.809641

Period(s): LB II (Dothan 1961: 171-175; IAA site 24495/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

76) Site: Bahan.

Ancient name:

Location: Central Canaan region. 32.351516, 35.022653

Period(s): LB (Porat et al 1985: 221-23; IAA site 2100/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

77) Site: Baidar, el.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 32.71971, 35.933896.

Period(s): LB (Yassine et al. 1988: 222).

Site size: 5.0 hectares? (Yassine et al. 1988: 222).

Fortification reduction: 10% mound reduction (4.5 hectares).¹²²

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,700

Overall site population density: 540 people per hectare

78) Site: Balah, Deir el.

Ancient name:

Location: Mediterranean Coastal region. 31.426905, 34.346661.

Period(s): LB II (DAAHL site 343100167)

Site size: 1.0 hectares (DAAHL site 343100167).

Fortification reduction: None.

¹²² Site destroyed. Only past estimates useable.

Site division: 80% residential, 20% other
 Total insulae in residential district: 16
 Estimated total residential population: 385 (0.67 village multiplier x 576)
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 350 (rounded)
 Overall site population density: 385 people per hectare

79) Site: Balameh, Khirbet. Sheikh Mansur. Ibleam.

Ancient name: Yablaamu/Yiblam? (Thutmose III Karnak list I: 43; Joshua 17:11, Judges 1:27).

Location: Central Canaan region. 32.445922, 35.291384.
 Period(s): LB I, LB II (Zertal 1992: 114-116; DAAHL site 353203488).
 Site size: 5.3 hectares (GIS)
 Fortification reduction: None additional. Measured top of mound.
 Site division: 80% residential, 20% other
 Total insulae in residential district: 88
 Estimated total residential population: 3,168
 Palace population: 20 ?
 Garrison population: 0 ?
 Temple population: 5 ?
 Estimated total maximum site population: 3,150 (rounded)
 Overall site population density: 594 people per hectare

80) Site: Banawi, Khirbet. Rasm Bir Jubarat.

Ancient name:
 Location: Central Canaan region. 31.505084, 34.816124.
 Period(s): LB (Dagan 1992: 146; IAA site 995/0).
 Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

81) Site: Baqah, Khirbet

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.048422, 36.486386.

Period(s): LB I, LB II (Van der Steen 2004: 143-144; Fischer 1999: 2).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

82) Site: Baram, Kafar.

Ancient name:

Location: Central Canaan region. 33.059743, 35.436271.

Period(s): LB (Thompson 1979: 73).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

83) Site: Barbara.

Ancient name:

Location: Mediterranean Coastal region. 31.583791, 34.628412.

Period(s): LB II (Allen 2008: 58).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

84) Site: Bar Elias, Tell

Ancient name:

Location: Beqa Valley region. 33.774724, 35.904241.

Period(s): LB I, LB II expansion (Marfoe 1995: 227; DAAHL site 353301095).

Site size: 17 hectares? (GIS; DAAHL site 353301095).

Fortification reduction: 10% mound reduction (15.3 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 272

Estimated total residential population: 9,792

Palace population: 50 ?

Garrison population: 200 ?

Temple population: 15 ?

Estimated total maximum site population: 10,050 LB II. 5,000 LB I?

Overall site population density: 591 people per hectare

85) Site: Barkai. Givat Shelomo.

Ancient name:

Location: Central Canaan region. 32.470088, 35.026483.

Period(s): LB (IAA site 21136/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

86) Site: Baruch, Kfar.

Ancient name:

Location: Central Canaan region. 32.646936, 35.192716.

Period(s): LB (Goren 2004: 354).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

87) Site: Bashir, Tell. Tall el Basheer.

Ancient name:

Location: Transjordan. 32.166367, 35.602857.

Period(s): LB I, LB II (Van der Steen 2004: 228; MEGA 3117).

Site size: Unknown hectares¹²³

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

88) Site: Bassah.

Ancient name:

Location: Transjordan. 32.155, 35.565.

Period(s): LB (MEGA 9092).

¹²³ Site destroyed. Many sites in the ancient Canaan region have unfortunately been destroyed.

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

89) Site: Batash, Tel. Tell Batashi. Timnah

Ancient name: Timnah? (Joshua 15:57).

Location: Central Canaan region. 31.784926, 34.911002.

Period(s): LB I, LB II (Panitz-Cohen and Mazar 2006: 3-5).

Site size: 3.5 hectares? (DAAHL site 343100019; Mazar 1997: 252).

Fortification reduction: 10% mound reduction (3.1 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 52

Estimated total residential population: 1,872

Palace population: 20 ?

Garrison population: 0 ?

Temple population: 5 ?

Estimated total maximum site population: 1,850 (rounded)

Overall site population density: 528 people per hectare

90) Site: Batn Umm Nari.

Ancient name:

Location: Central Canaan region. 32.387078, 35.176677.

Period(s): LB (Zertal and Mirkam 2000: 364-367)

Site size: 0.2 hectares? (DAAHL site 353201971)

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

91) Site: Bayada, Khirbet. Al Bayad.

Ancient name:

Location: Transjordan. 32.564076, 35.914187.

Period(s): LB I (MEGA 2824)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

92) Site: Beer Tivon. Khirbet el Bir. Tel Tabun.

Ancient name:

Location: Central Canaan region. 32.713124, 35.143050.

Period(s): LB (Goren 2004: 339; Thompson 1979: 121; IAA site 2540/0).

Site size: 0.4 hectares? (GIS)
 Fortification reduction:
 Site division: Outpost?
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population: 50
 Temple population:
 Estimated total maximum site population: 50
 Overall site population density: 125 people per hectare

93) Site: Beida, Khirbet. Horvat Lavnin.

Ancient name:
 Location: Central Canaan region. 31.641575, 34.952962.
 Period(s): LB (Dagan 1992: 151-52).
 Site size: 5 hectares? (GIS)
 Fortification reduction: None additional. Measured top of mound.
 Site division: 80% residential, 20% other
 Total insulae in residential district: 83
 Estimated total residential population: 2,988
 Palace population: 20 ?
 Garrison population: 0 ?
 Temple population: 5 ?
 Estimated total maximum site population: 3,000 (rounded)
 Overall site population density: 600 people per hectare

94) Site: Beida Tell el. Horvat Seifan.

Ancient name:
 Location: Central Canaan region. 32.67901, 35.197189.
 Period(s): LB (Thompson 1979: 123).

Site size: 0.3 hectares? (GIS)

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 417 people per hectare

95) Site: Beida.

Ancient name:

Location: Transjordan. 32.406, 35.747.

Period(s): LB I (MEGA 5879).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

96) Site: Beirut.

Ancient name: Beirut (118, EA 138, EA 141, EA 142, EA 143. Ugarit texts PRU IV: 162).

Location: Mediterranean Coastal region. 33.898534, 35.507757

Period(s): LB I, LB II (Curvers and Stuart 2007: 208; Badre 1997: 42-64; Sader 1997: 135). (Arnaud et al. 1996: Planche 3).

Site size: 6.5 hectares (Sader 1997: 119).¹²⁴

Fortification reduction: 10% mound reduction (5.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 97

Estimated total residential population: 3,492

Palace population: 50 ?

Garrison population: 200

Temple population: 5

Estimated total maximum site population: 3,700 (rounded)

Overall site population density: 569 people per hectare

97) Site: Beit Jann. Khirbet Beit Gan.

Ancient name:

Location: Lake Kinnereth region. 32.715847, 35.495633.

Period(s): LB (Liebowitz 2003: 2).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

98) Site: Beit Jirja.

¹²⁴ The Late Bronze Age city may have been slightly larger. The ancient mound fits within the bounds of George Haddad Avenue, Zaafaran Street, the old Rivoli building, and the modern harbor.

Ancient name:

Location: Mediterranean Coastal region.

Period(s): LB (Allen 2001: 110).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

99) Site: Beit Mirsim, Tell. Sheikh Handhal.

Ancient name:

Location: Central Canaan region. 31.455611, 34.910826.

Period(s): LB I, LB II (Albright 1938: 61-79; DAAHL site 343100027).

Site size: 3.0 hectares (Albright 1938: 2).

Fortification reduction: 10% mound reduction (2.7 hectares)¹²⁵

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population: 0

Garrison population: 0

Temple population: 5 ?

Estimated total maximum site population: 1,600 (rounded)

Overall site population density: 533 people per hectare

¹²⁵ Confirmed by GIS measurement.

100) Site: Beit Ur et Tahta. Lower Bet Horon.

Ancient name:

Location: Central Canaan region. 31.888927, 35.083189

Period(s): LB (Finkelstein and Lederman 1997: 161).

Site size: 2.8 hectares (Finkelstein and Lederman 1997: 161).

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 46

Estimated total residential population: 1,656

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,650 (rounded)

Overall site population density: 589 people per hectare

101) Site: Beit Yafa, Tall.

Ancient name:

Location: Transjordan. 32.514313, 35.788044.

Period(s): LB (Kafafi 2007: 394).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

102) Site: Beit Yanai (U).

Ancient name:

Location: Mediterranean Coastal region. 32.379642, 34.86052.

Period(s): LB (IAA site 26146/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

103) Site: Beitin. Bethel.

Ancient name: Luz? Bethel? (Joshua 12:9, Judges 1:23).

Location: Cisjordan. 31.926378, 35.239268.

Period(s): LB I, LB II (Kelso 1968: 28-31, 56-62).

Site size: 2.8 hectares (GIS; Finkelstein and Lederman 1997: 518).¹²⁶

Fortification reduction: None.¹²⁷

Site division: 80% residential, 20% other

Total insulae in residential district: 46

Estimated total residential population: 1,656

Palace population: 20 ?

Garrison population: 0

Temple population: 5 ?

Estimated total maximum site population: 1,650 (rounded)

¹²⁶ On site examination suggested that the settlement was larger than 2.2 hectares.

¹²⁷ Walls, but no rampart or typical mound.

Overall site population density: 589 people per hectare

104) Site: Ben Nun (west).

Ancient name:

Location: Central Canaan region. 31.859735, 34.937743.

Period(s): LB (IAA site 6708/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

105) Site: Beth Dajan. Ras Diyar.

Ancient name:

Location: Cisjordan. 32.19281, 35.372928.

Period(s): LB (Campbell 1991: 33).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

106) Site: Beth Ezra.

Ancient name:

Location: Mediterranean Coastal region. 31.749418, 34.662014.

Period(s): LB (IAA site 596/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

107) Site: Beth el Khirbeh.

Ancient name:

Location: Cisjordan. 32.147073, 35.259104.

Period(s): LB (Campbell 1991: 57).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

108) Site: Beth Shean. Tel Beth Shean.

Ancient name: Beth Shean (Thutmose III Karnak List I: 110; Stele of Amenemopet; Karnak List of Seti I: 51; Seti I el-Qurne list: 16; Seti I Beth-Shean stele KRI I 12:9; Ramesses II Karnak list: 25; Papyrus Anastasi I 22:8; EA 289; Joshua 17:16; Judges 1:27).

Location: Cisjordan region. 32.505328, 35.502788.

Period(s): LB I, LB II (Mazar and Mullins 2007: 11-21).

Site size: 3 hectares (Panitz-Cohen and Mazar 2009: 1; GIS).¹²⁸

Fortification reduction: None additional. Measured top of mound.

Site division: 50% residential, 50% military, administrative, and religious

Total insulae in residential district: 31

Estimated total residential population: 1,116

Palace population: 20 ?

Garrison population: 400 ?

Temple population: 5 ?

Estimated total maximum site population: 1,500 (rounded)

Overall site population density: 500 people per hectare

109) Site: Beth Shemesh. Tel Beth Shemesh. Tell Rumeileh. Ein Shams.

Ancient name: Shemesh-Adoma? (Thutmose III Karnak list I: 51; Luxor list of Amenhotep II: B6; Amenhotep II Memphis annals Urk IV 1302:1; Amenhotep II Karnak annals Urk IV 1301:11). Beth Shemesh (Joshua 19:38; Judges 1:33).

Location: Central Canaan region. 31.750782, 34.975168.

Period(s): LB I, LB II (Bunimovitz and Lederman 1993: 250)

Site size: 3 hectares (DAAHL site 343100030).

Fortification reduction: 10% mound reduction (2.7 hectares).

¹²⁸ 5 hectares excluding Temple area (James and McGovern 1993: 238), but this includes the slopes of the mound. The possibility of a lower city underneath the Roman ruins would substantially increase the size of the Late Bronze Age city. However, the occupation of this area in the Late Bronze Age is currently unknown.

Site division: 80% residential, 20% other
 Total insulae in residential district: 45
 Estimated total residential population: 1,620
 Palace population: 20 ?
 Garrison population: 0 ?
 Temple population: 5 ?
 Estimated total maximum site population: 1,600 (rounded)
 Overall site population density: 533 people per hectare

110) Site: Beth Zur. Khirbet et Tubeiqah.

Ancient name: Beth-Zur? (Ramesseum list of Ramesses II: 15; Joshua 15:58)
 Location: Cisjordan. 31.589288, 35.093673.
 Period(s): LB I, LB II (Finkelstein 1988: 48; Sellers et al 1968: 1, 37; Sellers 1933: Figs. 26, 50:6, Pl. VIII; Sellers et al 1968: Figs. 4, 10).
 Site size: 3.5 hectares (DAAHL site 353102543).
 Fortification reduction: 10% mound reduction (3.1 hectares)
 Site division: 80% residential, 20% other
 Total insulae in residential district: 52
 Estimated total residential population: 1,872
 Palace population: 20 ?
 Garrison population: 0
 Temple population: 5 ?
 Estimated total maximum site population: 1,850 (rounded)
 Overall site population density: 529 people per hectare

111) Site: Bija.

Ancient name:
 Location: Lake Kinnereth region. 33.100386, 35.764638.
 Period(s): LB (IAA site 22890/0).
 Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

112) Site: Bina, El.

Ancient name:

Location: Central Canaan region. 32.93238, 35.272201.

Period(s): LB I, LB II (Stern 2007)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

113) Site: Bira, Tel. Tell Bir el Gharbi.

Ancient name:

Location: Central Canaan region. 32.903294, 35.173394.

Period(s): LB (Bunimovitz 1989: 123; Thompson 1979: 90).

Site size: 7 hectares (Lehmann and Peilstocker 2012: 52).

Fortification reduction: 10% mound reduction (6.3 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 105

Estimated total residential population: 3,780

Palace population: 20 ?

Garrison population: 0 ?

Temple population: 5 ?

Estimated total maximum site population: 3,800 (rounded)

Overall site population density: 543 people per hectare

114) Site: Bir Dhakwa, Tell. Tell Bir Dakoue.

Ancient name:

Location: Beqa Valley region. 33.703024, 35.874695.

Period(s): LB I, LB II (Marfoe 1995: 209; DAAHL site 353301108).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

115) Site: Bir el Hilu, Khirbet.

Ancient name: Rubutu? (Thutmose III Karnak list: 105; EA 289, EA 290; Tanaakh letter of Guli-Adad; Rabah? Joshua 15:60).

Location: Cisjordan. 31.833606, 34.982924.

Period(s): LB (Shavit 1992: 95-96).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

116) Site: Bir el Jadu.

Ancient name:

Location: Central Canaan region. 32.392324, 35.235669.

Period(s): LB (Zertal 1992: 177-178).

Site size: 0.2 hectares? (DAAHL site 353201977).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

117) Site: Birqish.

Ancient name:

Location: Transjordan. 32.439914, 35.728815.

Period(s): LB (MEGA 5234).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

118) Site: Bir Tibis, Khirbet. Horvat Tevet.

Ancient name:

Location: Central Canaan region. 32.637568, 35.333079.

Period(s): LB I (IAA site 27702/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

119) Site: Bir Zeit, Khirbet.

Ancient name:

Location: Cisjordan. 31.965657, 35.191359.

Period(s): LB (Aharoni 1957: 12-14).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

120) Site: Boded, Ein.

Ancient name:

Location: Cisjordan. 31.657208, 35.121101.

Period(s): LB (IAA site 40066/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

121) Site: Boded, Nahal.

Ancient name:

Location: Cisjordan region. 31.658916, 35.121036.

Period(s): LB (IAA site 40065/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

122) Site: Bond, Khirbet.

Ancient name:

Location: Transjordan. 32.603297, 35.665214.

Period(s): LB (MEGA 10615).

Site size: 1.2 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 20

Estimated total residential population: 720

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 700 (rounded)

Overall site population density: 583 people per hectare

123) Site: Buleiq, Khirbet.

Ancient name:

Location: Central Canaan region. 32.589002, 35.384234.

Period(s): LB (Zori 1977: 57-59).

Site size: 0.7 hectares? (GIS)

Fortification reduction:

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 265 (0.67 village multiplier x 396).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 250

Overall site population density: 357 people per hectare

124) Site: Bull Site. Dhahrat et Tawileh. Bezeq. (S)

Ancient name:

Location: Central Canaan region. 32.408652, 35.32334.

Period(s): LB II (Zertal 2004: 178-179; DAAHL site 353203581).

Site size: 0.1 hectares (Finkelstein 1988 : 87).

Fortification reduction: None

Site division: Shrine

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population: Temporary ?

Estimated total maximum site population: 0

Overall site population density: 0 people per hectare

125) Site: Burak, Tell el.

Ancient name:

Location: Mediterranean Coastal region. 33.482386, 35.322653.

Period(s): LB I (Kamlah and Sader 2004 : 134 ; Gamer-Wallert 2001: 190).¹²⁹

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

126) Site: Bureij, Khirbet.

Ancient name:

Location: Central Canaan region. 31.863672, 35.086918.

Period(s): LB (Goren 2004: 355).

Site size: 0.3 hectares? (GIS)

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 50 people per hectare.

127) Site: Burgata, Tel. Tel Shitri. Burgeta. Hammadiyat.

Ancient name:

¹²⁹ Scarab of Hatshepsut and ceramics indicate sparse LB I occupation at the site.

Location: Mediterranean Coastal region. 32.522862, 34.967657.

Period(s): LB II (Porat et al 1985: 243-45; IAA site 1727/0; DAAHL site 343200029).

Site size: 1.0 hectares (Gophna and Kokhavi 1966: 144).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550

Overall site population density: 550 people per hectare

128) Site: Burin, Khirbet.

Ancient name:

Location: Central Canaan region. 32.478786,35.235675

Period(s): LB (Zertal and Mirkam 2000: 292).

Site size: 0.2 hectares? (DAAHL site 353201979).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

129) Site: Burna, Tel. Tell Burnat.

Ancient name: Libnath? Libnah? (Medinet Habu list of Ramesses III copied from Ramesses II Karnak list: 71; Joshua 10:29).

Location: Central Canaan region. 31.634584, 34.86807.

Period(s): LB I, LB II (Uziel and Shai 2010: 229-230).

Site size: 6 hectares (Uziel and Shai 2010: 229-230).¹³⁰

Fortification reduction: None additional. Overall site larger.

Site division: 80% residential, 20% other

Total insulae in residential district: 100

Estimated total residential population: 3,600

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,600 (rounded)

Overall site population density: 600 people per hectare

130) Site: Burqin, Khirbet. Khirbet Burkin.

Ancient name: Burquna/Burkuna? (Thutmose III Karnak list I: 117; EA 250:43).

Location: Central Canaan region. 32.45585 , 35.26045.

Period(s): LB (Zertal 1992: 97; DAAHL site 353203469).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

¹³⁰ The Late Bronze Age settlement at its peak may have been as large as 10 hectares, the estimated site size, or even 16 hectares, the artifact distribution.

131) Site: Busra esh-Sham. Busra. Bosra.

Ancient name: Busruna/Buzruna (Thutmose III Karnak list I: 23; Amenhotep III Kom el-Hetan list: BNr 5; EA 199).

Location: Hauran Plateau and Anti-Lebanon region. 32.518664, 36.492963.

Period(s): LB (Sartre 1985:83-84; DAAHL site 363201053).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

132) Site: Buweib, Khirbet.

Ancient name:

Location: Transjordan region. 32.239376, 35.590504.

Period(s): LB II (Van Der Steen 2004: 216; MEGA 9535).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

133) Site: Buweida, Khirbet.

Ancient name:

Location: Central Canaan region. 32.62279, 35.068595.

Period(s): LB (IAA site 7165/0).

Site size: 0.9 hectares? (DAAHL site 353201982).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 361 (0.67 multiplier x 540)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350

Overall site population density: 389 people per hectare

134) Site: Byblos.

Ancient name: Gubla (EA 363, EA 162, etc.; Joshua 13:5).

Location: Mediterranean Coastal region. 34.119115, 35.645795.

Period(s): LB I, LB II (Genz and Sader 2008: 274; Ward 1994: 81; Hachmann 1993: 16; Dussaud 1930: 178-179, Fig 7, Fig 8; DAAHL site 353400204).

Site size: 10 hectares? (GIS)¹³¹

Fortification reduction: 10% mound reduction (9 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 160

Estimated total residential population: 5,760

Palace population: 50 ?

Garrison population: 200 ?

¹³¹ Estimates for the size of the Late Bronze Age city vary, and are tentative.

Temple population: 10 ?

Estimated total maximum site population: 6,000 (rounded)

Overall site population density: 600 people per hectare

135) Site: Caesarea (U).

Ancient name:

Location: Mediterranean Coastal region. 32.489176, 34.885281.

Period(s): LB (IAA site 26144/0, 4405/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

136) Site: Dabsha, Khirbet. Khirbet Dabsheh.

Ancient name:

Location: Central Canaan region. 32.999437, 35.271166.

Period(s): LB (Frankel et al 2001: 25; IAA site 35057/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

137) Site: Dabulya, Khirbet.

Ancient name:

Location: Transjordan region. 32.598834, 35.83333.

Period(s): LB I, LB II (MEGA 5966; DAAHL site 353200243).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

138) Site: Dalton.

Ancient name:

Location: Central Canaan region. 33.016419, 35.490707.

Period(s): LB (Thompson 1979: 84).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

139) Site: Damascus. (T)

Ancient name: Dimasqu (Thutmose III Karnak list I: 13; Amenhotep III Kom el-Hetan list: BNr 3; Amara West Ramesses II list: 19; EA 197:13-23)

Location: Hauran Plateau and Anti-Lebanon region. 33.510914, 36.305434.

Period(s): LB I, LB II (Textual only)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 5,000?¹³²

Overall site population density:

140) Site: Damiyeh, Tell ed. Tell Damieh. Khirbet Dama.

Ancient name: Sarha/Zarethan? (EA 273; Joshua 3:16; Judges 7:22?)

Location: Transjordan region. 32.103953,35.546924

Period(s): LB II (Van der Steen 2004: 229; Liebowitz 2003: 2; Albright 1925: 19).

Site size: 0.5 hectares

Fortification reduction: None additional

Site division: Outpost

Total insulae in residential district:

¹³² Based on textual prominence and comparison to similar Late Bronze Age cities for which more reliable population estimates may be made.

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 100 people per hectare

141) Site: Damun.

Ancient name:

Location: Central Canaan region. 32.877123, 35.183844.

Period(s): LB (Thompson 1979: 90-91).

Site size: 6.7 hectares (Lehmann and Peilstocker 2012: 57).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 112

Estimated total residential population: 4,032

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 4,000

Overall site population density: 597 people per hectare

142) Site: Laish. Tel Dan. Tell el Qadi.

Ancient name: Laish (Thutmose III Karnak list I: 31; Joshua 19:47; Judges 18:7)

Location: Lake Kinnereth region. 33.248603, 35.653004.

Period(s): LB I, LB II decline (Ben-Dov 2011: 9-12; Ben-Dov 2011: 375-377).

Site size: 20 hectares (Ben-Dov 2011: 9, Plan 1; GIS).

Fortification reduction: 20% rampart reduction (16 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 285

Estimated total residential population: 10,260

Palace population: 50 ?

Garrison population:

Temple population: 10 ?

Estimated total maximum site population: 10,300 (rounded) LB I. LB II 8,000?

Overall site population density: 515 people per hectare

143) Site: Danab el Kalb, Khirbet. Khirbet Dhanab el Kalb.

Ancient name:

Location: Central Canaan region. 31.870551, 35.040516.

Period(s): LB (Shavit 1992: 93).

Site size: 0.8 hectares (Finkelstein and Magen 1993: 26; IAA site 9605/0).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 13

Estimated total residential population: 313 (0.67 multiplier x 468)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 300

Overall site population density: 375 people per hectare

144) Site: Dardara.

Ancient name:

Location: Lake Kinnereth region. 33.066927, 35.654002.

Period(s): LB (Hartal 1989:106-107; IAA site 22883/0, 22884/0)

Site size: 4 hectares

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 67

Estimated total residential population: 2,412

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,400

Overall site population density: 600 people per hectare

145) Site: Dauk, Khirbet. Tel Daokh.

Ancient name:

Location: Mediterranean Coastal region. 32.87164, 35.122413.

Period(s): LB (IAA site 2466/0).

Site size: 5 hectares (Lehmann and Peilstocker 2012: 28; Thompson 1979: 90).

Fortification reduction: 10% mound reduction (4.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,700

Overall site population density: 540 people per hectare

146) Site: Debbah, Tell.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 32.826542, 36.573791.

Period(s): LB (Braemer 1984:242-246).

Site size: 5 hectares (GIS).

Fortification reduction: 10% mound reduction (4.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,700

Overall site population density: 540 people per hectare

147) Site: Deir Alla, Tell.

Ancient name:

Location: Transjordan. 32.196619, 35.620877.

Period(s): LB I, LB II (Kafafi 2009: 587-594; MEGA 2688; DAAHL site 353200267).

Site size: 2.2 hectares (GIS; Kafafi 2009: 587-594).

Fortification reduction: 10% mound reduction (1.9 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 31

Estimated total residential population: 1,116

Palace population:

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 1,100 (rounded)

Overall site population density: 500 people per hectare

148) Site: Deir Khabiyah, Tell.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.360351, 36.161557.

Period(s): LB (al-Maqdissi 1993: 483)

Site size: 8.0 hectares (Goren 2004: 337).

Fortification reduction: 10% mound reduction (7.2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 120

Estimated total residential population: 4,320

Palace population: 20 ?

Garrison population:

Temple population: 10 ?

Estimated total maximum site population: 4,350

Overall site population density: 544 people per hectare

149) Site: Deir, Khirbet.

Ancient name:

Location: Cisjordan region. 32.659503, 35.535361.

Period(s): LB (Gal 1992: 32).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

150) Site: Deir, Khirbet ed.

Ancient name: Elteqon/Iltiqan? (Papyrus Leiden I 343, I 345 rt 6:8 and vs 11:1; Joshua 15:59).

Location: Cisjordan region. 32.308776, 35.386088.

Period(s): LB (Zertal 1996: 207-208; DAAHL site 353203905).

Site size: 0.2 hectares (DAAHL site 353202000).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

151) Site: Deir, Tell.

Ancient name:

Location: Cisjordan region. 32.389024, 35.520556.

Period(s): LB (Mittmann 1970: 132).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

152) Site: Deir, Tell ed.

Ancient name:

Location: Beqa Valley region. 33.691973, 35.794599.

Period(s): LB I, LB II (Marfoe 1995: 209; DAAHL site 353301105).

Site size: 2.0 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 1,188

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,150

Overall site population density: 575 people per hectare

153) Site: Deir Zenoun, Tell.

Ancient name:

Location: Beqa Valley region. 33.752386, 35.918002.

Period(s): LB I, LB II (Marfoe 1995: 225-226; DAAHL site 353301097).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

154) Site: Delhamiye, Tell.

Ancient name: Durbin? (Karnak List of Ramesses II: 29, copied onto Medinet Habu list of Ramesses III: 79)

Location: Beqa Valley region. 33.818287, 35.958927.

Period(s): LB I, LB II (Marfoe 1995: 227-228; DAAHL site 353301113).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

155) Site: Dalhamiya, Khirbet. Delhemiyeh.

Ancient name:

Location: Cisjordan region. 32.654723, 35.568933.

Period(s): LB (Bunimovitz 1989: 103; IAA site 23250/0).

Site size: 0.6 hectares

Fortification reduction:

Site division: 80% residential, 20% other

Total insulae in residential district: 10

Estimated total residential population: 241 (0.67 multiplier x 360)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 200 (rounded)

Overall site population density: 333 people per hectare

156) Site: Devora, Ain.

Ancient name:

Location: Lake Kinnereth region. 32.699114,35.370547

Period(s): LB (IAA site 39643/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

157) Site: Dhahab, Tall adh. Tall edh Dhehab. Tulul edh Dhahab.

Ancient name: Mahanaim?¹³³ (Joshua 13:26).

Location: Transjordan region. 31.893591, 35.557891.

Period(s): LB (Van der Steen 2004: 231).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

158) Site: Dahak, Horvat. Dhahhak. Ed Duq.

Ancient name:

Location: Cisjordan region. 32.592383, 35.571851.

Period(s): LB (IAA site 23255/0, 23256/0; Zori 1962: 194).

Site size: 0.9 hectares (DAAHL site 353202270).

¹³³ Dhahab has east and west mounds, possibly related to the dual ending of Mahanaim.

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 361 (0.67 multiplier x 540).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 389 people per hectare

159) Site: Dhuq, Khirbet edh.

Ancient name:

Location: Cisjordan region.

Period(s): LB (Campbell 1991)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

160) Site: Dibbin, Tell ed.

Ancient name: Iyyon? (Thutmose III Karnak list I: 95; EA 256:28).

Location: Central Canaan region. 33.344448, 35.590208.

Period(s): LB (Marfoe 1995: 185).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population:

Overall site population density:

161) Site: Dishon, Nahal.

Ancient name:

Location: Central Canaan region. 33.070802, 35.520418.

Period(s): LB (Ilan 1999: 164).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

162) Site: Dor, Tel. Tell el Burj.

Ancient name: Dor (Amara West list of Ramesses II: 76; Soleb list of Amenhotep III: 2B4; Joshua 12:23; Judges 1:27).

Location: Mediterranean Coastal region. 32.617378, 34.915532.

Period(s): LB I, LB II (DAAHL site 343200036).

Site size: 20 hectares? (GIS).¹³⁴

Fortification reduction: 1 hectare mound reduction (19 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 318

Estimated total residential population: 11, 448

Palace population: 20 ?

Garrison population:

Temple population: 10 ?

Estimated total maximum site population: 11,450 (rounded) LB II? 8,000 LB I?

Overall site population density: 573 people per hectare

163) Site: Dothan. Tel Dothan. Tell Dotha.

Ancient name: Dutin? (Thutmose III Karnak List I: 9; Kom el-Hatan list of Amenhotep III: CN1 13).

Location: Central Canaan region. 32.413528, 35.239861.

Period(s): LB I, LB II substantial reduction to 33%? (Master et al 2005: 49, 65).

Site size: 11 hectares (Cooley and Pratico 1994: 147; GIS).

Fortification reduction: 10% mound reduction (9.9 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 176

Estimated total residential population: 6,336

Palace population: 50?

Garrison population: 0?

Temple population: 5?

Estimated total maximum site population: 6,350 (rounded) LB I. 2,100 LB II?

Overall site population density: 577 people per hectare

164) Site: Doulab, Tell.

¹³⁴ The site is suggested to be smaller at 10 hectares (DAAHL site 343200036), but may also have been substantially larger than the estimated 20 hectares with a lower city during the Late Bronze Age. It is difficult to determine due to erosion caused by the ocean, and by incomplete excavations.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.384995, 36.545159.

Period(s): LB II (Al-Maqdissi 1990: 463).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

165) Site: Dulab, Tell al.

Ancient name:

Location: Central Canaan region. 34.00886, 35.834934.

Period(s): LB (DAAHL site 353400235).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

166) Site: Dover, Tel. Khirbet Duweir.

Ancient name:

Location: Lake Kinnereth region. 32.683976, 35.628789.

Period(s): LB I, LB II (Goren 2004: 341; Yehudah. 2001: 19; Albright 1925: 17; Thompson 1979: 133).¹³⁵

Site size: 1.5 hectares? (GIS).

Fortification reduction: 0.1 hectares mound reduction (1.4 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 23

Estimated total residential population: 828

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 800 (rounded)

Overall site population density: 533 people per hectare

167) Site: Ebal, Mount. El Burnat.

Ancient name:

Location: Cisjordan region. 32.240065, 35.287629.

Period(s): LB II (Finkelstein 1988: 84-85; DAAHL site 353202005).

Site size: 1.6 hectares (DAAHL site 353202005)

Fortification reduction: None

Site division: 50% residential, 50% military?

Total insulae in residential district: 16

Estimated total residential population: 385 (0.67 village multiplier x 576)

Palace population:

Garrison population: 50 ?

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 219 people per hectare

¹³⁵ Also personal communication with archaeologists Sam Wolff and Amir Golani, who recently excavated the site.

168) Site: Edron, Khirbet. Khirbet al Guela.

Ancient name:

Location: Central Canaan region. 33.050148, 35.217081.

Period(s): LB (Thompson 1979: 72).

Site size: 0.4 hectares (Thompson 1979: 72).

Fortification reduction: None

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

169) Site: Einabus.

Ancient name:

Location: Cisjordan region. 32.146657, 35.245188.

Period(s): LB (Finkelstein and Lederman 1997: 679).

Site size: 1.1 hectares (Finkelstein and Lederman 1997: 679).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 434 (0.67 village multiplier x 648)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 400

Overall site population density: 363 people per hectare

170) Site: Ekhsas, Tell. Tall Akhsas.

Ancient name:

Location: Transjordan region. 32.193464, 35.595101.

Period(s): LB II (Van der Steen 2004: 223; MEGA 9493).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

171) Site: Eli, Tel. Khirbet Sheikh Ali.

Ancient name:

Location: Lake Kinnereth region. 32.700518, 35.559695.

Period(s): LB (IAA site 3707/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

172) Site: Emeq Refaim. Manahat.

Ancient name:

Location: Cisjordan region. 31.753656, 35.178587

Period(s): LB I, LB II (Edelstein and Milevski 1991: 149).

Site size: 1.0 hectares (Edelstein and Milevski 1991: Fig 136).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 385 (0.67 village multiplier x 576)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 350 people per hectare

173) Site: Emunim.

Ancient name:

Location: Mediterranean Coastal region. 31.743095, 34.649094.

Period(s): LB (IAA site 16933/0)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

174) Site: Eshtori, Tel. Tel Malha. Tell el Maliha.

Ancient name:

Location: Cisjordan region. 32.495827, 35.524012.

Period(s): LB (Dagan 1992: 237-238; Bergman and Brandsteter 1941: 89)

Site size: 0.4 hectares (Shalem 1997: 40).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

175) Site: Et Tell, Khirbet. Ai.

Ancient name: Ai? (Joshua 7:2).

Location: Cisjordan region. 31.916762, 35.261668.

Period(s): LB I (Yeivin 1971: 51; Callaway et al. 1965: 13; Garstang 1931: 355-356; Albright 1929: 11-12; Garstang 1928 Department of Antiquities Report).

Site size: Unknown hectares¹³⁶

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

¹³⁶ Garstang estimated the MB and LB I city at approximately 3.6 hectares (Garstang 1931: 355). Assuming this to be correct, the population may have amounted to a maximum of 1,900 people. However, it is also possible that the LB settlement was not located primarily on the mound, but in the "lower city" region currently occupied by Deir Dibwan.

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

176) Site: Eton, Tel. Tel Aitun. Tell Eitun.

Ancient name: Eglon? (Joshua 10:34).

Location: Central Canaan region. 31.490058, 34.928267.

Period(s): LB (Faust 2011: 199, 220).

Site size: 6 hectares (Faust 2011: 198).

Fortification reduction: 10% mound reduction (5.4 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 90

Estimated total residential population: 3,240

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,250 (rounded)

Overall site population density: 542 people per hectare

177) Site: Fajja. Saida. Petah Tiqwa.

Ancient name:

Location: Central Canaan region. 32.09081, 34.907092.

Period(s): LB (IAA site 1383/0).

Site size: 0.2 hectares? (DAAHL site 343200041).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

178) Site: Far, Tell el. Tel Par.

Ancient name: Beten? (Joshua 19:25)

Location:

Period(s): LB (Gal 2000:86-89; Thompson 1979: 106; IAA site 2425/0).

Site size: 0.7 hectares (GIS)

Fortification reduction: 10% mound reduction (0.6 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 10

Estimated total residential population: 241 (0.67 village multiplier x 360)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 200 (rounded)

Overall site population density: 286 people per hectare

179) Site: Farah, Tell el (north).

Ancient name: Tirzah? (Joshua 12:24).

Location: Cisjordan region. 32.287178, 35.338151.

Period(s): LB I, LB II (Zertal 2008: 421-422; DAAHL site 353202027).

Site size: 8 hectares LB I, smaller LB II (Zertal 2008: 421-422).

Fortification reduction: 10% mound reduction (7.2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 120

Estimated total residential population: 4,320

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 4,300 (rounded)

Overall site population density: 538 people per hectare

180) Site: Farah, Tell el (south). Tel Sharuhen.

Ancient name: Hykalim/Haikalim? (Thutmose III Karnak list I: 89; Kom el-Hetan list of Amenhotep III BN1 10; 18th Dynasty scarab of Thutmose III (Lord of hkim).

Location: Southern Desert region. 31.2822, 34.482703.

Period(s): LB I, LB II (Petrie 1930: 6-7, Plate XII, Plate LIV; DAAHL site 343100266)

Site size: 6.5 hectares (GIS; DAAHL site 343100266).¹³⁷

Fortification reduction: 10% mound reduction (5.9 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 99

Estimated total residential population: 3,564

Palace population: 20 ?

Garrison population: 200 ?

Temple population: 5 ?

Estimated total maximum site population: 3,750 (rounded)

Overall site population density: 577 people per hectare

181) Site: Faras, Tall. Har Peres.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 32.959967,35.865264

Period(s): LB II (Thompson 1979: 88; IAA site 4154/0).

Site size: hectares

Fortification reduction:

Site division: N/A

¹³⁷ According to 1998 survey, LB likely extended over the whole mound (<http://farahsouth.cgu.edu/1998/surv9812.html>).

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

182) Site: Farrukhiya. Haltamiya.

Ancient name:

Location: Central Canaan region. 32.12459, 34.885967.

Period(s): LB (IAA site 1272/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

183) Site: Farwana, Khirbet. Horvat Parve.

Ancient name:

Location: Cisjordan region. 32.46167, 35.494561.

Period(s): LB (Zori 1962: 178; IAA site 27721/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

184) Site: Fawwar.

Ancient name:

Location: Central Canaan region. 31.483388,34.983016.

Period(s): LB (DAAHL site 343101453).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

185) Site: Fayadieh. Fayadiya (C).

Ancient name:

Location: Central Canaan region. 33.843108, 35.557893.

Period(s): LB (Genz and Sader 2008: 275; Saidah 1967: 171).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 0
 Overall site population density:

186) Site: Fukhar, Tell el.

Ancient name:
 Location: Transjordan region. 32.586936, 35.956878.
 Period(s): LB I, LB II (Strange 2000: 476-481; Strange 1997: 399-406).
 Site size: 0.3 hectares?¹³⁸
 Fortification reduction:
 Site division: Outpost
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population: 50 ?
 Temple population:
 Estimated total maximum site population: 50
 Overall site population density: 167 people per hectare

187) Site: Ful, Tell el.¹³⁹

Ancient name: Shikkeron? (Joshua 15:11)
 Location: Central Canaan region. 31.820161, 34.813739.
 Period(s): LB (Goren 2004: 345).
 Site size: hectares

¹³⁸ Indications of a lower city, which would substantially increase the population.

¹³⁹ Not be confused with the site north of Jerusalem.

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

188) Site: Funeitir, Khirbet.

Ancient name:

Location: Central Canaan region. 32.526467, 35.083958.

Period(s): LB (Goren 2004: 346).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

189) Site: Fuqeiqis, Khirbet.

Ancient name:

Location: Cisjordan region. 31.489111, 35.070589.

Period(s): LB (DAAHL site 353106470).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

190) Site: Gahosh, Khirbet. Khirbet al Gahush.

Ancient name:

Location: Central Canaan region. 32.83844, 35.15164.

Period(s): LB (Thompson 1979: 105).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

191) Site: Gallim, Kefar (U).

Ancient name:

Location: Mediterranean Coastal region. 32.763072, 34.951124.

Period(s): LB (IAA site 14782/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

192) Site: Gamom, Khirbet. Khirbet Gumegima.

Ancient name:

Location: Central Canaan region. 32.866846, 35.265517.

Period(s): LB (Thompson 1979: 92).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

193) Site: Gath. Gat, Tel. Tell es Safi. Tel Zafit.

Ancient name: Gath (Thutmose III Karnak list I: 6; Luxor list of Amenhotep II: A14; Joshua 11:22)

Location: Central Canaan region. 31.702193,34.847535

Period(s): LB I, LB II (Goren 2004: 345; Uziel 2003; DAAHL site 343100130).

Site size: 34 hectares (Uziel 2003: 39).
 Fortification reduction: 10% mound reduction (30.6 hectares).
 Site division: 85% residential, 15% other
 Total insulae in residential district: 545
 Estimated total residential population: 19,620
 Palace population: 50?
 Garrison population: 400?
 Temple population: 10?
 Estimated total maximum site population: 20,000 (rounded)
 Overall site population density: 588 people per hectare

194) Site: Gath Hefer, Tel. Mashhad. Khirbet Zurra.

Ancient name: Hefer? (Joshua 12:17).
 Location: Central Canaan region. 32.7387, 35.319455.
 Period(s): LB (Thompson 1979: 125; Jaffe 2012).
 Site size: 1.8 hectares? (GIS; DAAHL site 353202542)
 Fortification reduction: 10% mound reduction (1.6 hectares).
 Site division: 80% residential, 20% other
 Total insulae in residential district: 26
 Estimated total residential population: 936
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 900 (rounded)
 Overall site population density: 500 people per hectare

195) Site: Gaza. Tell Gaza.

Ancient name: Hazzatu (Thutmose III's annals Urk IV 648:10-11; Papyrus Anastasi I 27:8; Papyrus Anastasi III vs 6:1; EA 289, EA 296; Taanach letter 6; Joshua 10:41; Judges 1:18).

Location: Mediterranean Coastal region. 31.505806, 34.460932.

Period(s): LB I, LB II (Phythian-Adams 1923a: 11-17, 1923b: 18-30).

Site size: 30 hectares? (Phythian-Adams 1923a: 12, 29).¹⁴⁰

Fortification reduction: 10% mound reduction (27 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 481

Estimated total residential population: 17,316

Palace population: 50 ?

Garrison population: 400 ?

Temple population: 15 ?

Estimated total maximum site population: 17,750? (rounded)

Overall site population density: 592 people per hectare

196) Site: Gbub.

Ancient name:

Location: Transjordan region. 32.48419, 35.719682.

Period(s): LB (MEGA 5233; DAAHL site 353200362, 353200363).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

¹⁴⁰ Said to take approximately 50 minutes to walk around the mound, and that it was much larger than Ashkelon, although the Bronze Age mound was substantially smaller than the Classical period site. The site is now hidden under modern Gaza.

197) Site: Geba Shemen, Tel. Tell el Amr.

Ancient name: Geba Shemen (Thutmose III Karnak list I: 41. Amenhotep II's annals Urk IV 1308:12).

Location: Central Canaan region. 32.728316, 35.096548.

Period(s): LB (Thompson 1979: 118).

Site size: 1.5 hectares (GIS).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 900

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 900

Overall site population density: 600 people per hectare

198) Site: Gerar 100

Ancient name:

Location: Southern Desert region. 31.395764, 34.62619.

Period(s): LB (Goren 2004: 355).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

199) Site: Gerar, Nahal. Wadi esh Sharia.

Ancient name:

Location: Southern Desert region. 31.385763, 34.622688.

Period(s): LB (IAA site 26073/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

200) Site: Gezer. Tel Gezer. Tell el Jezer. Abu Shusha.

Ancient name: Gezer (Thutmose III Karnak list I: 104; Soleb list Amenhotep III: 9B2; Thutmose IV Urk IV 1556: 11; EA 253; Merneptah Amada Inscription KRI IV 1:9; Merneptah Stele; Joshua 10:33; Judges 1:29).

Location: Central Canaan region. 31.859467, 34.920585.

Period(s): LB I, LB II (Segal 1988: Figure 1; DAAHL site 343100177).

Site size: 12.0 hectares (GIS; DAAHL site 343100177).

Fortification reduction: 10% mound reduction (10.8 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 192

Estimated total residential population: 6,912

Palace population: 20 ?

Garrison population: 200 ?

Temple population: 5 ?

Estimated total maximum site population: 7,100 (rounded)

Overall site population density: 592 people per hectare

201) Site: Ghalta, Tell. Tel Reala.

Ancient name:

Location: Central Canaan region. 32.683304, 35.173952.

Period(s): LB (Thompson 1979: 122; IAA site 2676).

Site size: 0.9 hectares (DAAHL site 353202472).

Fortification reduction: 10% mound reduction (0.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 13

Estimated total residential population: 468

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 450 (rounded)

Overall site population density: 500 people per hectare

202) Site: Ghassil, Tell el.

Ancient name:

Location: Beqa Valley region. 33.92062, 36.071666.

Period(s): LB I, LB II (Marfoe 1995: 241-42; Marfoe 1998: 164).

Site size: 2.2 hectares (Marfoe 1998: 164).

Fortification reduction: 10% mound reduction (1.9 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 31

Estimated total residential population: 1,116

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,100 (rounded)

Overall site population density: 500 people per hectare

203) Site: Ghazaleh, Tell.

Ancient name:

Location: Transjordan region. 32.226389, 35.609546.

Period(s): LB I, LB II (Van der Steen 2004: 219; MEGA 2745).

Site size: 0.3 hectares (GIS)

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

204) Site: Ghozlan, Umm el.

Ancient name:

Location: Transjordan region. 32.59584, 35.70777.

Period(s): LB I, LB II (MEGA 5356).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

205) Site: Ghreimun, Tall.

Ancient name:

Location: Transjordan region. 32.185129, 35.742441.

Period(s): LB (MEGA 11352).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

206) Site: Gibeon. Tell el Jib.

Ancient name:

Location: Cisjordan region. 31.846781, 35.184933.

Period(s): LB I, LB II (DAAHL site 353103926; Pritchard 1961: 22-23; Garstang 1931: 379).¹⁴¹

Site size: 8 hectares? (GIS; Finkelstein and Magen 1993: 46).¹⁴²

Fortification reduction:

Site division: N/A

Total insulae in residential district:

¹⁴¹ Also see University of Pennsylvania objects 62-30-1403 and 62-30-1524 from the mound during the Pritchard excavations—a Late Bronze Age Cypriot handle and a Late Bronze Age oil lamp.

¹⁴² The mound measures at least 8 hectares, and perhaps up to 13 hectares, but the size of Late Bronze Age city is unknown. It may primarily be located in unexcavated parts of the site, such as near the spring, under the modern village, and in the surrounding fields.

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

207) Site: Giloh. Gillo.

Ancient name:

Location: Cisjordan region. 31.73481, 35.185082.

Period(s): LB II (Finkelstein 1988: 50).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

208) Site: Girit, Tel. Tell el Jariya.

Ancient name:

Location: Mediterranean Coastal region. 32.409934, 34.869038.

Period(s): LB (Gohpna and Kochavi 1966: 143; Porat et al 1985: 124-125; IAA site 8644/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

209) Site: Giveat Oz.

Ancient name:

Location: Central Canaan region. 32.550830, 35.210236.

Period(s): LB (Zori 1977: 51).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

210) Site: Goded, Tel. Tell Judeideh. Tell Moreshet Gat.

Ancient name:

Location: Central Canaan region. 31.6333, 34.9118.

Period(s): LB (LB IAA site 1369/0)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

211) Site: Gush Halav. El Jish.

Ancient name:

Location: Central Canaan region. 33.025158, 35.434797.

Period(s): LB (Thompson 1979: 76; Aharoni 1957: 12-14).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

212) Site: Hadar, Tel. Khirbet Khadr. Sheik Khadr.

Ancient name:

Location: Lake Kinnereth region. 32.849939, 35.648164.

Period(s): LB I (Kochavi 1995: 30; IAA site 3875/0).¹⁴³

Site size: 2.0 hectares (Kochavi 1995: 30).¹⁴⁴

¹⁴³ Also Late Bronze Age underwater site associated with Tel Hadar LB IAA site 26765/0.

¹⁴⁴ Because of the underwater site, the original site may have been slightly larger.

Fortification reduction: 10% mound reduction (1.8 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

213) Site: Hadid, Tel. Haditheh.

Ancient name: Hadid? (Thutmose III Karnak list I: 76; Split list of Seti I: B34; Luxor list of Amenhotep II: B7).

Location: Central Canaan region. 31.963973, 34.951151.

Period(s): LB (IAA site 13220/0).

Site size: hectares

Fortification reduction:

Site division: 80% residential, 20% other

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

214) Site: Haifa Nemat Ha Qishon.

Ancient name:

Location: Mediterranean Coastal region. 32.804176, 35.036343.

Period(s): LB (Thompson 1979: 100; IAA site 2159/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

215) Site: Hajjaj, Tell.

Ancient name:

Location: Transjordan region. 32.149537, 35.692004.

Period(s): LB II (Van der Steen 2004: 231).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

216) Site: Halif, Tel. Tell Khuweilifeh.

Ancient name: Zepath/Safita/Hormah? (Thutmose III annals Urk IV 650:11;

Thutmose III Karnak list I: 116; Joshua 12:14; Judges 1:17).

Location: Southern Desert region. 31.385589, 34.867362.

Period(s): LB I, LB II (Seger 1993: 554; IAA site 25898/0)

Site size: 1.4 hectares (DAAHL site 343100047).

Fortification reduction: 10% mound reduction (1.2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 20

Estimated total residential population: 720

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 700 (rounded)

Overall site population density: 500 people per hectare

217) Site: Halukim, Horvat.

Ancient name:

Location: Lake Kinnereth Region. 32.66269, 35.600229.

Period(s): LB (Gonen 2004: 341).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

218) Site: Ham.

Ancient name: Ham? (Thutmose III Karnak list I: 118). Aktamas? (Thutmose III Karnak List I: 119).

Location: Transjordan region. 32.513883, 35.81405.

Period(s): LB (MEGA 11484).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

219) Site: Hamamat, Khirbet.

Ancient name:

Location: Cisjordan region. 32.299122, 35.487961.

Period(s): LB II (Zertal 1996: 314-316).

Site size: 0.4 hectares (Zertal 2008: 340-342).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

220) Site: Hamid, Tall Abu.

Ancient name:

Location: Transjordan region. 32.317358, 35.568805

Period(s): LB (MEGA 6592).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

221) Site: Hamid, Tell. Ras Abu Humeid.

Ancient name:

Location: Central Canaan region. 31.903246, 34.890965.

Period(s): LB (Shavit 1992:102-103).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

222) Site: Hammah, Tell el. Hamath.

Ancient name: Hamath? (Papyrus Anastasi I 21:7; Seti I Karnak list; Seti I El-Qurne lists: 14; Seti I Wadi Abbad list: 7; Seti I larger Beth-Shean stele, KRI I 12:8, 11; Papyrus Anastasi I 21:7).

Location: Cisjordan region. 32.373252, 35.50036.

Period(s): LB I, LB II (Cahill and Tarler 1993: 561; Albright 1925: 18; DAAHL site 353204973)

Site size: 1.5 hectares (GIS)

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 900

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 900

Overall site population density: 600 people per hectare

223) Site: Hammeh, Khirbet el (Hammeh 03)

Ancient name: Hamatu? (Thutmose III Karnak list I: 16)

Location: Transjordan region. 32.4682, 35.5996

Period(s): LB (MEGA 4663).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

224) Site: Hammeh 08.

Ancient name:

Location: Transjordan region. 32.469065, 35.604838.

Period(s): LB II (MEGA 9609).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

225) Site: Hammeh 19.

Ancient name:

Location: Transjordan region. 32.465585, 35.602467.

Period(s): LB (MEGA 9615).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

226) Site: Hamud, Ras. El Bird.

Ancient name:

Location: Cisjordan region. 32.323963, 35.467528.

Period(s): LB II (Zertal 1996: 273-276).

Site size: 1.9 hectares (Zertal 2008: 294-298).

Fortification reduction:

Site division: 80% residential, 20% other

Total insulae in residential district: 31

Estimated total residential population: 747 (0.67 village multiplier x 1,116).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 700 (rounded)

Overall site population density: 368 people per hectare

227) Site: Hanita.

Ancient name:

Location: Mediterranean Coastal region. 33.088216, 35.172932.

Period(s): LB (IAA site 21774/0; Thompson 1979: 70).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

228) Site: Hannathon, Tel. Tell Bedeiwiyeh. Hannaton.

Ancient name: Hinnatunu? (EA 245; Joshua 19:14).
 Location: Central Canaan region. 32.785931, 35.256971.
 Period(s): LB (Thompson 1979: 107).
 Site size: 5 hectares (Dessel 1999: 12).
 Fortification reduction: 10% mound reduction (4.5 hectares)
 Site division: 80% residential, 20% other
 Total insulae in residential district: 75
 Estimated total residential population: 2,700
 Palace population: 20 ?
 Garrison population:
 Temple population: 5 ?
 Estimated total maximum site population: 2,700 (rounded)
 Overall site population density: 540 people per hectare

229) Site: Haql el Baida.

Ancient name:
 Location: Beqa Valley region. 34.213754, 36.341881.
 Period(s): LB (Marfoe 1995: 274).
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

230) Site: Haql el Gami, Tell.

Ancient name:

Location: Beqa Valley region. 34.243287, 36.346265.

Period(s): LB I, LB II (Marfoe 1995: 273-74; DAAHL site 363400353).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

231) Site: Har Ammiad. (C)

Ancient name:

Location: Lake Kinnereth region. 32.930498, 35.537399.

Period(s): LB (Thompson 1979: 92).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

232) Site: Hara el Fauqa, Khirbet el. (C)

Ancient name:

Location: Cisjordan region. 31.874679, 35.275956.

Period(s): LB (Finkelstein and Magen 1993: 36).

Site size: 4 hectares? (Finkelstein and Magen 1993: 36).¹⁴⁵

Fortification reduction:

Site division: Cemetery?

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

233) Site: Haraqim, Tel. Tell Khiraqa.

Ancient name:

Location: Central Canaan region. 31.52409, 34.827308.

Period(s): LB (Dagan 1992: 129; IAA site 1032/0).

Site size: 8 hectares? (GIS)

Fortification reduction: 10% mound reduction (7.2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 120

Estimated total residential population: 4,320

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

¹⁴⁵ While LB tombs were found at the site, there may have also been LB occupation. The 4 hectares includes part of the modern village of Mukhmas.

Estimated total maximum site population: 4,300 (rounded)

Overall site population density: 538 people per hectare

234) Site: Harashim, Tell. Khirbet Tuleil. Ras es Suq.

Ancient name:

Location: Central Canaan region. 32.967092, 35.334509.

Period(s): LB I, LB II (Givon 2002: 2; IAA site 3172/0)

Site size: 16 hectares (Givon 1991: 2; Thompson 1979: 83).

Fortification reduction: 10% mound reduction (14.4 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 241

Estimated total residential population: 8,676

Palace population: 50 ?

Garrison population:

Temple population: 10 ?

Estimated total maximum site population: 8,700 (rounded)

Overall site population density: 544 people per hectare

235) Site: Hariqet er Ras.

Ancient name:

Location: Central Canaan region. 32.480986, 35.219688.

Period(s): LB (Zertal and Mirkam 2000: 185-187).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

236) Site: Haror, Tel. Tell Abu Hureireh.

Ancient name: Gerar? (Joshua 15:58).¹⁴⁶

Location: Southern Desert region. 31.38187, 34.607136.

Period(s): LB I, LB II (IAA site 454/0; Oren 1993: 113-116).

Site size: 1.5 hectares (DAAHL site 343100187).

Fortification reduction: 10% mound reduction (1.3 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 21

Estimated total residential population: 756

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 750 (rounded)

Overall site population density: 500 people per hectare

237) Site: Harqala, Khirbet.

Ancient name:

Location: Transjordan region. 32.39891, 35.82552.

Period(s): LB II (MEGA 5880).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

¹⁴⁶ Scribal error Gedor for Gerar?

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

238) Site: Haruv, Kfar.

Ancient name:

Location: Central Canaan region. 31.530775, 34.932874.

Period(s): LB (Epstein 1993: 85).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

239) Site: Haruvit.

Ancient name:

Location: Central Canaan region. 31.729408, 34.860892.

Period(s): LB (IAA site 30/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

240) Site: Hasas, Tel.

Ancient name:

Location: Lake Kinnereth region. 33.231795, 35.623326.

Period(s): LB (Ilán 1999: 163).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

241) Site: Hashbe, Tell. Hashbaya.

Ancient name: Hashabu? (Thutmose III Karnak list I: 55; Split list of Seti I: A34; Amenhotep II Memphis annals Urk IV 1304:10,11; EA 174)

Location: Central Canaan region. 33.38487, 35.683259.

Period(s): LB (Marfoe 1995: 240-41).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

242) Site: Hattin, Qarn. Tel Qarnei Hittin.

Ancient name: Adumim? Adami Ha Neqeb? (Thutmose III List I: 36; Papyrus Anastasi I 22:1; Joshua 19:33). Adamah/Udumu? (EA 256; Joshua 19:36). Madon? (Joshua 11:1).¹⁴⁷

Location: Lake Kinnereth region. 32.799793, 35.459483.

Period(s): LB I, LB II (Gal 1992: 44; Thompson 1979: 107; Albright 1928: 5-6).¹⁴⁸

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

243) Site: Hawam, Tell Abu.

Ancient name:

Location: Mediterranean Coastal region. 32.799594, 35.016836.

Period(s): LB I, LB II (Artzy 2006: 47; Hamilton 1935: 11, 63, 66; Plate XVI, XVII, XIX, XIII).

Site size: 4.5 hectares (DAAHL site 353202669).

¹⁴⁷ Based on place name of nearby Khirbet Madin.

¹⁴⁸ Personal communication with current excavations, directed by Rafi Lewis.

Fortification reduction: 10% mound reduction (4 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 67

Estimated total residential population: 2,412

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,400

Overall site population density: 533 people per hectares

244) Site: Hawayah. (C)

Ancient name:

Location: Transjordan region. 32.088919, 35.825534.

Period(s): LB (MEGA 11324).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

245) Site: Hayyat, Tell el.

Ancient name:

Location: Transjordan region. 32.42318, 35.578964.

Period(s): LB I, LB II (MEGA 9592).

Site size: 0.5 hectares (DAAHL site 353200470).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 8

Estimated total residential population: 193 (0.67 village multiplier x 288)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 150

Overall site population density: 300 people per hectare

246) Site: Hazavim, Horvat.

Ancient name:

Location: Cisjordan region. 32.474827, 35.562352.

Period(s): LB I (IAA site 23841/0, 23842/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

247) Site: Hazir, Tell.

Ancient name:

Location: Central Canaan region. 32.722689, 35.204741.

Period(s): LB (IAA site 32519/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

248) Site: Hazor. Tel Hazor. Tell el Qedah. Khirbet Waqqas.

Ancient name: Hazor/Hasura. (Thutmose III Karnak list I: 32; Thutmose III annals Urk IV 760:5; Amenhotep II Karnak list: 18; Papyrus Leningrad 1116A vs: 77, 187; Seti I Karnak lists: 64, 66; Papyrus Anastasi I 21:7; EA 148; Joshua 11:1; Judges 4:2).

Location: Lake Kinnereth region. 33.017498, 35.567978.

Period(s): LB I, LB II. LB II decline (Zuckerman 2003: 19; Ben-Tor 1989: xiii; Yadin and Angress 1960: 113; Bienkowski 1987: 51; DAAHL site 353300074).

Site size: 88 hectares (Yadin 1970: 15-17; GIS).

Fortification reduction: 70 hectares (18 hectares reduction of rampart and mound).¹⁴⁹

Site division: 85% residential, 15% other (calculated by excavation findings and maps)

Total insulae in residential district: 1247

Estimated total residential population: 44,892

Palace population: 50?

Garrison population: 400?

Temple population: 15?

Estimated total maximum site population: 45,300 (rounded) LB I. 22,500 LB II?

Overall site population density: 498 people per hectare

¹⁴⁹ Measured by utilizing satellite photographs and GIS measurement.

249) Site: Hebron. Tell Rumeideh. Er-Rumeida

Ancient name: Hebron/Kiriath Arba (Joshua 10:3; Judges 1:10)

Location: Cisjordan region. 31.522896, 35.033098.

Period(s): LB I, LB II (Chadwick 1992: 77-96; DAAHL site 353106384).

Site size: 3 hectares? (GIS)¹⁵⁰

Fortification reduction: 10% mound reduction (2.7 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,600

Overall site population density: 533 people per hectare

250) Site: Heneideh, Tall.

Ancient name:

Location: Transjordan region. 32.337112, 35.608458.

Period(s): LB (MEGA 4649).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

¹⁵⁰ Estimate includes input from on site examination and Chadwick 1992.

251) Site: Henu, Rujm.

Ancient name:

Location: Transjordan region. 32.084297, 35.83363.

Period(s): LB I, LB II (McGovern 1986: 13; MEGA 11327).

Site size: hectares

Fortification reduction:

Site division: Farmstead?¹⁵¹

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density:

252) Site: Hesban Region Survey Site 132.

Ancient name:

Location: Transjordan region. 31.849574, 35.85962.

Period(s): LB (MEGA 3264).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

¹⁵¹ The site could have been a small village, as some sherds are about 500 meters apart.

Overall site population density:

253) Site: Hesban Region Survey Site 128.

Ancient name:

Location: Transjordan region. 31.858473, 35.842981.

Period(s): LB (MEGA 11267).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

254) Site: Hesi, Tell el. Tell Hasi.

Ancient name:

Location: Central Canaan region. 31.545269, 34.729509.

Period(s): LB I, LB II expansion (Tombs 1989: Fig 1; 160; IAA site 748/0).

Site size: 13 hectares (4 hectare mound and 9 hectare lower city) LB II; 3 hectares LB I? (Petrie 1891: 14-15; DAAHL site 343100189).

Fortification reduction: 10% mound reduction (12.5 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 209

Estimated total residential population: 7,524

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 7,500 (rounded) LB II. 1,600 LB I?

Overall site population density: 577 people per hectare

255) Site: Hilu, Tell el. Hulu, Tell el. Tel Sheikh Sifry Abu Sif.

Ancient name: Abel-Meholah? (Judges 7:22).

Location: Cisjordan. 32.327131, 35.503938.

Period(s): LB I, LB II (Zertal 1996: 283-285; Zertal 2008: 307-310; DAAHL site 353204985).

Site size: 0.3 hectares (Zertal 2008: 307-310).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

256) Site: Hira.

Ancient name:

Location: Mediterranean Coastal region. 32.122155, 34.834458.

Period(s): LB (Thompson 1979: 94).

Site size: 2 hectares (Thompson 1979: 94).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 1,188

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,150 (rounded)

Overall site population density: 575 people per hectare

257) Site: Hishule Carmel. (U)

Ancient name:

Location: Mediterranean Coastal region. 32.788483, 34.953901.

Period(s): LB (IAA site 14575/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

258) Site: Hissou.

Ancient name:

Location: Transjordan region. 32.284974, 35.606061.

Period(s): LB (MEGA 4613).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

259) Site: Hizzin, Tell. (C)

Ancient name: Hasi? (Thutmose III Karnak list I: 3; EA 185)

Location: Beqa Valley region. 33.965259, 36.104134.

Period(s): LB (Marfoe 1995: 241).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

260) Site: Hof Amnun (west).

Ancient name:

Location: Lake Kinnereth region. 32.890737, 35.592902.

Period(s): LB (IAA site 42275/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

261) Site: Hofit (north).

Ancient name:

Location: Mediterranean Coastal region. 32.38817, 34.87834.

Period(s): LB (IAA site 8720/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

262) Site: Holon.

Ancient name:

Location: Mediterranean Coastal region. 32.002691, 34.763603.

Period(s): LB (IAA site 843/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

263) Site: Homet, Ain.

Ancient name:

Location:

Period(s): LB (IAA site 28160/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

264) Site: Horeshat Yaala. Shajarat el Kalb.

Ancient name:

Location: Lake Kinnereth region. 32.684744, 35.531195.

Period(s): LB (IAA site 3648/0).

Site size: 0.4 hectares? (GIS)

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

265) Site: Hosn, Tell el.

Ancient name:

Location: Beqa Valley region. 34.152265, 36.266574.

Period(s): LB I, LB II (Marfoe 1995: 266; DAAHL site 363400370).

Site size: 1.5 hectares? (GIS).¹⁵²

Fortification reduction: 10% mound reduction (1.3 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 21

Estimated total residential population: 756

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 750 (rounded)

Overall site population density: 500 people per hectare

266) Site: Hotrim. (U)

Ancient name:

Location: Mediterranean Coastal region. 32.753336, 34.949462.

Period(s): LB (IAA site 14783/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

¹⁵² Agriculture has partially destroyed and obscured the site.

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

267) Site: Husn, Tall el. Tell Husun.

Ancient name:

Location: Transjordan region. 32.49102, 35.88040.

Period(s): LB I, LB II (Kafafi 2007: Table 1; MEGA 2681).

Site size: 5 hectares (Leonard 1987a: 359).

Fortification reduction: 10% mound reduction (4.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,700 (rounded)

Overall site population density: 540 people per hectare

268) Site: Idham, Umm el.

Ancient name:

Location: Transjordan region. 32.16723,35.677734.

Period(s): LB (MEGA 10372).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

269) Site: Ifshar, Tell el. Tel Hefer.

Ancient name:

Location: Mediterranean Coastal region. 32.371818, 34.90814.

Period(s): LB I, LB II (DAAHL site 343200053).

Site size: 2 hectares (DAAHL site 343200053).

Fortification reduction: 10% mound reduction (1.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

270) Site: Iktanu, Tall.

Ancient name:

Location: Transjordan region. 31.819021, 35.671189.

Period(s): LB (Prag 1993: 270; Van der Steen 2004: 84).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

271) Site: Iraq er Rashdan.

Ancient name:

Location: Transjordan region. 32.518361, 35.609274.

Period(s): LB (MEGA 9675; DAAHL site 353200538).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

272) Site: Irbid, Tall. Arbela.

Ancient name: Gith/Gintuta? (Thutmose III Karnak list I: 93; Kom el-Hetan list of Amenhotep III: BN1 3; Ginteti of EA 295 rev:7?)

Location: Transjordan region. 32.558877, 35.847355.

Period(s): LB I, LB II (Strange 2000: 476; Fischer 1999: 2; MEGA 2811; DAAHL site 353200545)

Site size: 6 hectares? (GIS; Strange 2000: 476)

Fortification reduction: 10% mound reduction (5.4 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 90

Estimated total residential population: 3,240

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,250 (rounded)

Overall site population density: 542 people per hectare

273) Site: Izbet Sartah.

Ancient name:

Location: Central Canaan region. 32.10468, 34.964528.

Period(s): LB II (Finkelstein 1988: 75; IAA site 1722/0).

Site size: hectares

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: N/A

274) Site: Iztabba, Tell. Tell el Mastubeh.

Ancient name:

Location: Cisjordan region. 32.512576, 35.496728.

Period(s): LB (Zori 1962: 152).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

275) Site: Jerash, Tall.

Ancient name:

Location: Transjordan region. 32.278933, 35.889146.

Period(s): LB I, LB II (Braemer 1987: 525-528; MEGA 58418; DAAHL site 353200584).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

276) Site: Jazayir, el.

Ancient name:

Location: Transjordan region. 31.841661, 35.651179.

Period(s): LB (MEGA 5090; DAAHL site 353100436).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

277) Site: Jedur, Khirbet. (C)

Ancient name:

Location: Cisjordan region. 31.627475, 35.083387.

Period(s): LB (Ben-Arieh 1981: 115-128).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

278) Site: Jemmeh, Tell. Tell Gemme. Tel Gema. Tell Jemain.

Ancient name: Yurza? (Thutmose III annals Urk IV 846:6; Thutmose III Karnak list I: 60; EA 314-316; Split list of Seti I: A39)

Location: Southern Desert region. 31.383565, 34.444122.

Period(s): LB I, LB II (Ben-Shlomo 2012: 133-134, 140-145; Zori 1962: 162; Petrie 1928: 4-6, Plate iv).

Site size: 19 hectares LB II, 5 hectares LB I? (Ben-Shlomo 2012: 133-134, 140-145; GIS; DAAHL site 343100197)

Fortification reduction: 10% mound reduction (17.1 hectares)

Site division: 85% residential, 15% other

Total insulae in residential district: 286

Estimated total residential population: 10,296

Palace population: 20 ?

Garrison population: 100 ?

Temple population: 10 ?

Estimated total maximum site population: 10,400 (rounded) LB II. 2,700 LB I?

Overall site population density: 547 people per hectare

279) Site: Jenin, Tell.

Ancient name: Gina? (EA 250:17; Joshua 15:34).

Location: Central Canaan region. 32.460765, 35.298186.

Period(s): LB I, LB II (Salem 2006: 67, 86; Zertal and Mirkam 2000: 222-228; DAAHL site 353204961).

Site size: 3 hectares?¹⁵³

Fortification reduction: 10% mound reduction (2.7 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,600 (rounded)

Overall site population density: 533 people per hectare

280) Site: Jericho. Tell es Sultan.

¹⁵³ Estimate primarily based on site visitation and GIS with the comparison of site maps. Ancient site is now nearly completely destroyed.

Ancient name: Jericho (Amara West List of Ramesses II, probably copied from Soleb list of Amenhotep III ; Joshua 2:1).¹⁵⁴

Location: Cisjordan region. 31.871207, 35.444039.

Period(s): LB I, LB II (Fischer 1999: 1; Wood 1990: 45-49, 68-69; Bienkowski 1986: 120; Tushingham 1953: 63; Kenyon 1951: 133; Garstang 1941: 369-371; Garstang 1934: 106-111; Watzinger 1926: 131-136).

Site size: 7 hectares (Marchetti, Nigro, Sarie 1998: 141; GIS) LB I.¹⁵⁵ 0.1 hectares LB II?

Fortification reduction: 10% of mound (6.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 109

Estimated total residential population: 3,924

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,900 (rounded) LB I. 15 LB II?

Overall site population density: 557 people per hectare

281) Site: Jerisheh, Tell el. Tel Gerisa.

Ancient name: Gath-Rimmon? (EA 250:46; Joshua 21:24).

Location: Mediterranean Coastal region. 32.091742, 34.807755.

Period(s): LB I, LB II (DAAHL site 343200042).

Site size: 5 hectares (GIS; DAAHL site 343200042).

Fortification reduction: 10% mound reduction (4.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

¹⁵⁴ Attestation of Jericho on the Amara West List is tentative (Horn 1953: 201-203). See list of textually attested sites in Chapter 8.

¹⁵⁵ This size includes both the lower city, discovered relatively recently, and the mound. Destruction of the site by roads and building in the modern period have further obscured the site, and it may have been even larger at its pinnacle.

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,700 (rounded)

Overall site population density: 540 people per hectare

282) Site: Jerusalem.

Ancient name: Jerusalem (EA 287; Joshua 10:1; Judges 1:7).

Location: Cisjordan region.

Period(s): LB I, LB II (De Groot and Bernick-Greenberg 2012: 149-150; Fischer 1999: 2, 22)

Site size: 10 hectares (GIS; DAAHL site 353102568).¹⁵⁶

Fortification reduction: 20% mound and terrain reduction (8 hectares).¹⁵⁷

Site division: 85% residential, 15% other

Total insulae in residential district: 142

Estimated total residential population: 5,112

Palace population: 20 ?

Garrison population: 200 ?

Temple population: 5 ?

Estimated total maximum site population: 5,300 (rounded)

Overall site population density: 530 people per hectare

283) Site: Jerusalem, Wadi ed Damm/Nahal Atarot.

Ancient name:

Location: Cisjordan region. 31.832184, 35.215364.

Period(s): LB (IAA site 27028/0).

¹⁵⁶ Several other LB sites have also been found in ancient Jerusalem, suggesting that the metropolitan area of the city was much larger than the main, walled city in the City of David area. Sites stretch from Armon Ha Naziv in the south to the Mount of Olives in the East to St. Etienne Monastery in the North with some possible LB material found slightly West of the City of David. This overall area would be massive. However, due to the topography of ancient Jerusalem, this would not have been one contiguous settlement.

¹⁵⁷ The terrain of ancient Jerusalem made large scale contiguous settlement difficult because of the many hills and valleys.

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

284) Site: Jerusalem, Mount of Olives/Jebel Zeitun.

Ancient name:

Location: Cisjordan region. 31.778676, 35.243985.

Period(s): LB (IAA site 2948/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

285) Site: Jerusalem, St. Etienne Monastery.

Ancient name:

Location: Cisjordan region. 31.784732, 35.229844.

Period(s): LB (IAA site 8412/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

286) Site: Jerusalem, Government House/Armon Ha Naziv.

Ancient name:

Location: Cisjordan region. 31.7546, 35.236335.

Period(s): LB

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

287) Site: Jerusalem, Dominus Flevit. (C)

Ancient name:

Location: Cisjordan region. 31.778006, 35.241847.

Period(s): LB I, LB II (Saller 1964: 13-193).

Site size: hectares
 Fortification reduction:
 Site division: Cemetery
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 0
 Overall site population density:

288) Site: Jett, Tell. Tell Jatt. Djett.

Ancient name: Gath-Padalla? (Thutmose III Karnak list I: 70; EA 250:12). Ginti-Kirmil? (EA 288, EA 298).

Location: Central Canaan region. 32.398461, 35.040388.

Period(s): LB (Yannai 2000: 62; Albright 1946: 25-26)

Site size: 7 hectares (DAAHL site 353202186; Yannai 2000: 62).

Fortification reduction: 10% mound reduction (6.3 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 105

Estimated total residential population: 3,780

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,800 (rounded)

Overall site population density: 543 people per hectare

289) Site: Jezreel, Tel. Zerin.

Ancient name: Jezreel? (Joshua 15:56).

Location: Central Canaan region. 32.558352, 35.329664.

Period(s): LB I, LB II (Ussishkin and Woodhead 1997: 85; Goren 2004: 350).

Site size: 0.7 hectares? (DAAHL site 353202503).

Fortification reduction: 10% mound reduction (0.6 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 10

Estimated total residential population: 360

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 500 people per hectare

290) Site: Jijjin.

Ancient name:

Location: Transjordan region. 32.583971, 35.769483.

Period(s): LB I, LB II (MEGA 2891; DAAHL site 353200588).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

291) Site: Jisr, Tell el.

Ancient name:

Location: Beqa Valley region. 33.640022, 35.778613.

Period(s): LB (Marfoe 1995: 197).

Site size: 1.3 hectares (GIS).

Fortification reduction: 10% mound reduction (1.1 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 648

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 461 people per hectare

292) Site: Judur, Khirbet. Tell Judur.

Ancient name:

Location: Cisjordan region. 31.63242, 35.09296.

Period(s): LB II (Kochavi 1972: 46-47; IAA site 2306/0; DAAHL site 353105825).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

293) Site: Juhfiyaa, Tall. Tell Johfiyeh.

Ancient name:

Location: Transjordan region. 32.49158, 35.82166.

Period(s): LB II (Kafafi 2007: Table 1).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

294) Site: Kabb el Kroum, Tell.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.614316, 35.942219.

Period(s): LB I, LB II (Bonatz 2002: 288-290).

Site size: 4 hectares (Bonatz 2002: 288-290).

Fortification reduction: 10% mound reduction (3.6 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 60

Estimated total residential population: 2,160

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,150 (rounded)

Overall site population density: 538 people per hectare

295) Site: Kabri, Tel. Tall an-Nahr. Tell Qahwa. Dhahrat et Tell.

Ancient name:

Location: Mediterranean Coastal region. 33.007602, 35.139232.

Period(s): LB I, LB II (Kempinski et al 2002: 1, 4-5, 74; Lehmann 2002: 176; Fischer 1999: 2, 22; Thompson 1979: 80; DAAHL site 353300054).

Site size: 16 hectares? (Thompson 1979: 80; Kempinski et al 2002: 1, 4-5, 74; Lehmann 2002: 176; DAAHL site 353300054).¹⁵⁸

Fortification reduction: None additional

Site division: 85% residential, 15% other

Total insulae in residential district: 285

Estimated total residential population: 10,260

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 10,250 (rounded)

Overall site population density: 256 people per hectare (for total 40 hectare site)

296) Site: Kama, Kafr.

Ancient name:

Location: Lake Kinnereth region. 32.721425, 35.441805.

Period(s): LB (IAA site 32399/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

¹⁵⁸ The estimated size of the site during MB III ranges from 40 to 32. Late Bronze Age material was found in E and D on east and west sides of the site, indicating at least a substantial, perhaps 50%+ settlement in the Late Bronze Age.

297) Site: Kamid el-Loz. Kumidi.

Ancient name: Kumidi (Thutmose III Karnak list I: 8; EA 116, EA 185, EA 198).

Location: Beqa Valley region. 33.62409, 35.821399.

Period(s): LB I, LB II (Marfoe 1995: 121-157; Marfoe 1998: 160).

Site size: 5.5 hectares LB I, probable expansion but exact size unknown LB II (Marfoe 1998: 160, 170).¹⁵⁹

Fortification reduction: 10% mound reduction (4.9 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 82

Estimated total residential population: 2,952

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,950 (rounded) LB I. 4,000 LB II?

Overall site population density: 536 people per hectare

298) Site: Karm. Horbat Deveqa.

Ancient name:

Location: Cisjordan region. 32.461059, 35.560152.

Period(s): LB (IAA site 23828/0, 23829/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

¹⁵⁹ The site could have originally been larger, but due to soil removal the site is estimated at 5.5 hectares.

Estimated total maximum site population: Unknown

Overall site population density:

299) Site: Karmeliya.

Ancient name:

Location: Mediterranean Coastal region. 32.797268, 34.975312.

Period(s): LB (Thompson 1979: 101).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

300) Site: Kanaf, Horvat. Mazraat Kanaf.

Ancient name:

Location: Lake Kinnereth region. 32.871793, 35.686757.

Period(s): LB (IAA site 3937/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

301) Site: Kanisa, Khirbet. Horvat Kones. (U)

Ancient name:

Location: Mediterranean Coastal region. 32.771714, 34.951607.

Period(s): LB (IAA site 1669/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

302) Site: Karpas, Tell. Qarantina.

Ancient name:

Location: Cisjordan region. 32.465252, 35.558994.

Period(s): LB (Zori 1962: 155-156).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

303) Site: Kassis, Tell. Tel Qashish. Tell el Qassis.

Ancient name: Dabbesheth? (Joshua 19:11)

Location: Central Canaan region. 32.685141, 35.109514.

Period(s): LB I, LB II (Ben-Tor et al. 2003: Table 1, 245-276, 369; Thompson 1979: 122; IAA site 2419/0).

Site size: 3 hectares at base, 1 hectare at top (GIS).¹⁶⁰

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550 (rounded)

Overall site population density: 550 people per hectare

304) Site: Kataret es Samra. Qataret es Samra.

Ancient name:

Location: Transjordan. 32.159292, 35.566852.

Period(s): LB I, LB II (Van der Steen 2004: 227; MEGA 4342).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

¹⁶⁰ A measurement of 4.3 hectares at the base of the mound was given, but unless this includes a lower city it is incorrect (Ben-Tor et al. 2003: 1).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

305) Site: Kebarrah, el. Khebarrah.

Ancient name:

Location: Central Canaan region. 32.363959, 35.30833.

Period(s): LB (Zertal 1992: 224-25; DAAHL 353203727).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

306) Site: Kedesh, Tel. Tell Abu Qudeis.

Ancient name:

Location: Central Canaan region. 32.559646, 35.216373.

Period(s): LB I, LB II (DAAHL site 353202431; Goren 2004: 350)

Site size: 1.1 hectares (DAAHL site 353202431).

Fortification reduction: 10% mound reduction (1.0 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550 (rounded)

Overall site population density: 500 people per hectare

307) Site: Keilah. Khirbet Qila. Khirbet Qeila.

Ancient name: Qeltu/Qeilah? (EA 279, EA 280; Joshua 15.44).

Location: Central Canaan region. 31.613928, 35.002913.

Period(s): LB (IAA site 1966/0; Dagan 1992: 161).

Site size: 5 hectares (DAAHL site 353102584).

Fortification reduction: 10% mound reduction (4.5 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,700

Overall site population density: 540 people per hectare

308) Site: Kerak, Khirbet. Tel Beth Yerah.¹⁶¹

Ancient name:

Location: Lake Kinnereth region. 32.715486, 35.571616.

Period(s): LB (Thompson 1979: 130).

Site size: LB size unknown

Fortification reduction:

Site division: N/A

Total insulae in residential district:

¹⁶¹ Likely a small LB site to the side of Khirbet Kerak.

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

309) Site: Kereimeh, Tell. Keraimeh. Kuraymah.

Ancient name:

Location: Transjordan region. 32.271953, 35.596958.

Period(s): LB (Van der Steen 2004: 213-215; MEGA 2846; MEGA 9523).

Site size: 0.3 hectares (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

310) Site: Khabyeh.

Ancient name:

Location: Transjordan region. 32.106025, 35.780227.

Period(s): LB (MEGA 5790).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

311) Site: Khalde. Khalda.

Ancient name:

Location: Mediterranean Coastal region. 33.778626, 35.472326.

Period(s): LB (Saidah 1969: 130; Genz and Sader 2008: 275).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

312) Site: Khan al Aqaba.

Ancient name:

Location: Lake Kinnereth region. 32.699394, 35.634315.

Period(s): LB (DAAHL site 353203346)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

313) Site: Kharabeh, Tall el.

Ancient name:

Location: Transjordan region. 32.235111, 35.588833.

Period(s): LB I, LB II (Van der Steen 2004: 218).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

314) Site: Kharaz, Tell Abu.

Ancient name:

Location: Transjordan region. 32.399304, 35.594694.

Period(s): LB I, LB II (Kafafi 2007: Table 1; Van der Steen 2004: 68).

Site size: 1.1 hectares (GIS).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 648

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 545 people per hectare

315) Site: Khas, Abu el.

Ancient name:

Location: Transjordan region. 32.447483, 35.615781.

Period(s): LB (MEGA 9581).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

316) Site: Kheibar, Khirbet.

Ancient name:

Location: Central Canaan region. 32.352186, 35.277018.

Period(s): LB II (Zertal 1992: 227-229; DAAHL site 353203753).

Site size: 1.0 hectares (GIS).¹⁶²

Fortification reduction: None additional. Measured top of mound.

¹⁶² DAAHL site record 353202056 claims Kheibar is a 3 hectare site in MB IIB and MB IIC, but this would be measuring beyond even the base of the mound.

Site division: 80% residential, 20% other
 Total insulae in residential district: 16
 Estimated total residential population: 576
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 550 (rounded)
 Overall site population density: 550 people per hectare

317) Site: Kheir Allah.

Ancient name:
 Location: Central Canaan region. 32.355843, 35.212801.
 Period(s): LB (Zertal 1992: 247-249)
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

318) Site: Kheiriya. Ibn Ibreiq. Mesubbim Junction.

Ancient name:
 Location: Mediterranean Coastal region. 32.037757, 34.828643.
 Period(s): LB (Peilstocker and Burke 2011: Figure 7.1)
 Site size: hectares
 Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

319) Site: Khelayel. Khellaiyel.

Ancient name:

Location: Central Canaan region. 32.257415, 35.414554.

Period(s): LB I (Zertal 1996: 373-376; Zertal 2008: 409-413).

Site size: 0.5 hectares (Zertal 1996: 373-376; Zertal 2008: 409-413).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 8

Estimated total residential population: 193 (0.67 village multiplier x 288)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 150 (rounded)

Overall site population density: 300 people per hectare

320) Site: Khirbeh, Tell el. Tall al Khirba.

Ancient name: Maromim? (Thutmose III Karnak list I: 85; Amenhotep II Luxor list: B16; Joshua 11:5).

Location: Central Canaan region. 33.076565, 35.432312.

Period(s): LB I, LB II (Thompson 1979: 74; Goren 2004: 347).

Site size: 1.5 hectares (GIS; Goren 2004: 347).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 900

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 900

Overall site population density: 600 people per hectare

321) Site: Khishash, Khirbet. Tel Bar. Tell Aghbariya.

Ancient name:

Location: Central Canaan region. 32.600518, 35.155152.

Period(s): LB (IAA site 2581/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

322) Site: Khrab.

Ancient name:

Location: Central Canaan region. 32.436179, 35.150966.

Period(s): LB (Zertal 1992: 117-119).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

323) Site: Khreis, Tel. Tel Chres. (U)

Ancient name:

Location: Mediterranean Coastal region. 32.742526, 34.948334.

Period(s): LB (IAA site 27631/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

324) Site: Khudeira, Tell.

Ancient name:

Location: Central Canaan region. 32.721254, 35.193179.

Period(s): LB (Goren 2004: 354).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

325) Site: Kinnereth. Tell el Oreimeh. Tell Kinrot. Tell Ureymeh. Tel Chinnereth.

Ancient name: Kinnereth (Thutmose III Karnak list I: 34; Papyrus Leningrad 1116A vs: 69, 186; Joshua 19:35).

Location: Lake Kinnereth region. 32.869545, 35.540417.

Period(s): LB I, LB II (Fritz 1990: 244-245).

Site size: 2.6 hectares (DAAHL site 353202325).

Fortification reduction: 10% mound reduction (2.3 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 38

Estimated total residential population: 1,368

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,350 (rounded)

Overall site population density: 519 people per hectare

326) Site: Kison, Tel. Tell Keisan.

Ancient name: Qisun/Qison? (Thutmose III Karnak list I: 37; Joshua 19:20)

Location: Central Canaan region. 32.873167, 35.150965.

Period(s): LB I, LB II (Lehmann and Peilstocker 2012: 37; DAAHL site 353202657)

Site size: 4 hectares (GIS; Lehmann and Peilstocker 2012: 37; Thompson 1979: 90; DAAHL site 353202657).¹⁶³

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 67

Estimated total residential population: 2,412

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,400 (rounded)

Overall site population density: 600 people per hectare (overall site closer to 400 per hectare).

327) Site: Kitan, Tel. Tell Kittan. Tel Musa. Tell Sheikh Qasim.

Ancient name:

Location: Cisjordan region. 32.590439, 35.574018.

Period(s): LB I, LB II (IAA site 3768/0; DAAHL site 353202326).

Site size: 0.8 hectares (DAAHL site 353202326).

Fortification reduction: 10% mound reduction (0.7 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 396

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 438 people per hectare

328) Site: Klakha, Khirbet Umm. Klaha, Khirbet Umm.

¹⁶³ According to Lehmann and Peilstocker 2012, LB only on mound.

Ancient name:

Location: Central Canaan region. 31.608963, 34.816118.

Period(s): LB (IAA site 23277/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

329) Site: Kuhwani. Hamizre Ha Zarua.

Ancient name:

Location: Lake Kinnereth region. 32.685376, 35.560023.

Period(s): LB (Goren 2004: 341).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

330) Site: Kumah. Kumeh.

Ancient name:

Location: Cisjordan region. Near Shechem.

Period(s): LB (Campbell 1991: 84).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

331) Site: Kureikur, Khirbet. Giv'at Ehud. Yehudit

Ancient name:

Location: Central Canaan region. 31.920177, 35.035184.

Period(s): LB (DAAHL site 353106713; IAA site 2136/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

332) Site: Kuz, Khirbet Kefr. Khirbet Huweiha.

Ancient name:

Location: Cisjordan region. 32.233214, 35.296314.

Period(s): LB (Campbell 1991: 23).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

333) Site: Kweim.

Ancient name:

Location: Transjordan region. 32.247588, 35.852556.

Period(s): LB I, LB II (MEGA 6651).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

334) Site: Labweh, Tell. Tell Labwa. Tell Qasr Labwe.

Ancient name: Lebo? Lebo-Hamath? (Thutmose III Karnak list I: 82; Amenhotep II Memphis annals Urk IV 1304:5; Ramesses II Kadesh inscriptions KRI II 132:4; Split list of Seti I: B40; Joshua 13:5; Judges 3:3).

Location: Beqa Valley region. 34.197481, 36.34216.

Period(s): LB (Marfoe 1995: 271-72).

Site size: 5.5 hectares (GIS).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 92

Estimated total residential population: 3,312

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,300 (rounded)

Overall site population density: 600 people per hectare

335) Site: Lachish. Tel Lachish. Tell ed Duweir.

Ancient name: Lakish (Papyrus Leningrad 1116A vs:2; Lachish Bowl 3, obv 2; EA 288, EA 238, etc.; Joshua 10:3).

Location: Central Canaan region. 31.565556, 34.848985.

Period(s): LB I, LB II (Tufnell 1958: 64-67; Clamer and Ussishkin 1977: 71).

Site size: 13 hectares (GIS; Ussishkin 2004: 57-63, Table 3.3; DAAHL site 343100061).¹⁶⁴

Fortification reduction: 10% mound reduction (11.7 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 208

Estimated total residential population: 7,488

Palace population: 20 ?

¹⁶⁴ LB largest period at Lachish, and expanded beyond the slopes of the mound. The probable presence of a lower city in the LB would further extend the boundaries of the LB site, perhaps over 20 hectares. Qubeiba/Kefar Lachish LB and Nahal Lachish LB suggest presence of a lower city (IAA site 1138/0 and IAA site 11839/0).

Garrison population: 200 ?

Temple population: 10 ?

Estimated total maximum site population: 7,750 (rounded)

Overall site population density: 596 people per hectare

336) Site: Lod. El Ludd.

Ancient name: Lod (Thutmose III Karnak list).

Location: Central Canaan region. 31.962803, 34.901428.

Period(s): LB I (Kogan-Zehavi 2000: 65; Schwartz 1991: 39; DAAHL site 343100202).

Site size: 2 hectares (DAAHL site 343100202).

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 1,188

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,150 (rounded)

Overall site population density: 575 people per hectare

337) Site: Maaravim, Tel.

Ancient name:

Location: Southern Desert region. 31.39167, 34.722101.

Period(s): LB I, LB II (IAA site 20544/0; DAAHL site 343100203).

Site size: 0.3 hectares (DAAHL site 343100203).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 50 people per hectare

338) Site: Mabrak. Al Mabrak.

Ancient name:

Location: Transjordan region. 31.932934, 35.982819.

Period(s): LB II (Waheeb 1992: 399-408; DAAHL site 353100525).

Site size: hectares

Fortification reduction:

Site division: Outpost (Waheeb 1992: 399-408).

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: Unknown

339) Site: Madawwara Tahton, Ain.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 32.958301, 35.877782.

Period(s): LB (IAA site 16969/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

340) Site: Madrasa, Tell. Tel Madras. Tel Midrash. Maoz Hayyim.

Ancient name:

Location: Cisjordan region. 32.495411, 35.552154.

Period(s): LB (IAA site 3699/0; Zori 1962: 170).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

341) Site: Magfiat N 98.

Ancient name:

Location: Transjordan region. 31.918647, 35.680491.

Period(s): LB (MEGA 5105).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

342) Site: Mahane Ha Maapilim (U).

Ancient name:

Location: Mediterranean Coastal region. 32.719588, 34.944712.

Period(s): LB (IAA site 6535/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

343) Site: Mahaz, Nahal.

Ancient name:

Location: Central Canaan region. 31.524648, 34.745141.

Period(s): LB (IAA site 13505/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

344) Site: Mahoz, Tel. Tell Abu Sultan.

Ancient name: Muhazi? (Thutmose III Karnak list I: 61; Muhhazu EA 298; Split list of Seti I: A40; Amara West list of Ramesses II: 69; Ugaritic UT 2014:17; RS 19.42: 10)

Location: Mediterranean Coastal region. 31.920687, 34.743252.

Period(s): LB (Dothan 1952: 110).

Site size: 1.0 hectares (Dothan 1952: 108).

Fortification reduction: 10% mound reduction (0.9 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 540

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 500 (rounded)

Overall site population density: 500 people per hectare

345) Site: Majdal, Khirbet. Horvat Migdar.

Ancient name: Migdal/Magdal? (Thutmose III Karnak list I: 71; Amenhotep II Memphis annals Urk IV 1307:5; EA 69, EA 70, EA 185; Ramesses II Karnak list (left hypostyle): 32; Copied on Medinet Habu list of Ramesses III; Joshua 15:37).

Location: Central Canaan region. 32.410015, 34.994721.

Period(s): LB (Goren 2004: 346).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

346) Site: Majdalouna. Majaluna.

Ancient name:

Location: Central Canaan region. 33.597501, 35.454761.

Period(s): LB I (Genz and Sader 2008: 276).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

347) Site: Mallaha, Tell. Tall Reemim. Tall ar Rumman.

Ancient name:

Location: Central Canaan region. 33.090292, 35.580917.

Period(s): LB (Ilán 1999: 163; IAA site 7325/0; Thompson 1979: 77).

Site size: 5 hectares (GIS).

Fortification reduction: 10% mound reduction (4.5 hectares).

Site division: 80% residential, 20% other
 Total insulae in residential district: 75
 Estimated total residential population: 2,700
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 2,700
 Overall site population density: 540 people per hectare

348) Site: Malot, Tel. Tell Malat.

Ancient name: Gebath? (Thutmose III Karnak list I: 103; Joshua 21:23)
 Location: Central Canaan region. 31.856145, 34.865465.
 Period(s): LB I, LB II (Parnos et al. 2010: 34-40; Shavit 1994:49-50).
 Site size: 0.7 hectares? (DAAHL site 343100211).
 Fortification reduction: 10% mound reduction (0.6 hectares)
 Site division: 80% residential, 20% other
 Total insulae in residential district: 10
 Estimated total residential population: 360
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 350 (rounded)
 Overall site population density: 500 people per hectare

349) Site: Malta, Khirbet.

Ancient name:
 Location: Central Canaan region. 32.712227, 35.293095.
 Period(s): LB (IAA site 22989/0, 22990/0, 22991/0, 22992/0).
 Site size: hectares
 Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

350) Site: Maluah, Tel. Tell Qitaf. Tel Jizl.

Ancient name:

Location: Cisjordan region. 32.44311, 35.557384.

Period(s): LB (IAA site 3690/0).

Site size: 0.8 hectares? (GIS).

Fortification reduction: 10% mound reduction (0.7 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 396

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 438 people per hectare

351) Site: Malul. Maalul.

Ancient name:

Location: Central Canaan region. 32.699669, 35.239407.

Period(s): LB (IAA site 27895/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

352) Site: Manam, Horvat. Khirbet Deir en Numan.

Ancient name:

Location: Central Canaan region. 31.757732, 34.873485.

Period(s): LB (Dagan 1992: 79).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

353) Site: Manqeh el Foqa, Khirbet.

Ancient name:

Location: Cisjordan region. Near Shechem.

Period(s): LB (Campbell 1991: 63).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

354) Site: Mansura, Khirbet el.

Ancient name:

Location: Transjordan region. 32.304473, 35.693297.

Period(s): LB II (MEGA 10431).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

355) Site: Mansurah.

Ancient name:

Location: Lake Kinnereth region. 32.882777, 35.415468.

Period(s): LB (Liebowitz 2003: 2).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

356) Site: Maqam Breqa. Maqam Bureji. Makam Breqa.

Ancient name:

Location: Lake Kinnereth region. 32.733883, 35.683878.

Period(s): LB (IAA site 25783/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

357) Site: Maqatir, Khirbet. Khirbet Makatir.

Ancient name: Ai? (Joshua 7:2).

Location: Cisjordan region. 31.915154, 35.24988.

Period(s): LB I (Wood 2008: 232-236; Wood 2000: 123-30).

Site size: 1.1 hectares (Wood 2008: 230, Figure 13; GIS).

Fortification reduction: None.¹⁶⁵

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 648

Palace population: 20 ?

Garrison population:

Temple population:

Estimated total maximum site population: 650 (rounded) LB I.

Overall site population density: 591 people per hectare

358) Site: Maqbarah.

Ancient name:

Location: Cisjordan region. 32.250628, 35.399567.

Period(s): LB I, LB II (Zertal 2008: 436-439).

Site size: 0.8 hectares (Zertal 2008: 436-439).¹⁶⁶

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 13

Estimated total residential population: 313 (0.67 village multiplier x 468)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 300 (rounded)

Overall site population density: 375 people per hectare

359) Site: Maqbarah, Tell. Meqbereh, Tall.

Ancient name:

Location: Transjordan region. 32.399834, 35.590445.

¹⁶⁵ No rampart or mound slope.

¹⁶⁶ Site size is a combination of sites 161, 162, and 163, which all appear to be one continuous settlement.

Period(s): LB II (MEGA 4654).

Site size: 0.3 hectares (GIS)

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

360) Site: Maqbarat es Sleikhat.

Ancient name:

Location: Transjordan region. 32.331492, 35.598352.

Period(s): LB (MEGA 4650).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

361) Site: Maqne, Tell.

Ancient name:

Location: Beqa Valley region. 34.079402, 36.212384.

Period(s): LB I, LB II (Marfoe 1995: 257; DAAHL site 363400375).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

362) Site: Maraait.

Ancient name:

Location: Central Canaan region. 31.51343, 34.632907.

Period(s): LB (IAA site 26282/0).

Site size: hectares

Fortification reduction:

Site division: 80% residential, 20% other

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population:

Overall site population density:

363) Site: Marg Sirin. Khirbet Sirin.

Ancient name:

Location: Lake Kinnereth region. 32.650383, 35.499942.

Period(s): LB (Thompson 1979: 93).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

364) Site: Marjame, Khirbet. Khirbet Marjama.

Ancient name:

Location: Cisjordan region. 31.812183, 35.332008.

Period(s): LB I, LB II (Finkelstein and Lederman 1997: 732; DAAHL site 353102589).

Site size: 3.5 hectares (Finkelstein and Lederman 1997: 732; DAAHL site 353102589).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 58

Estimated total residential population: 2,088

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,050 (rounded)

Overall site population density: 586 people per hectare

365) Site: Masad, Tel. Khirbet el Hajj Mahmud. Ruppin, Kefar.

Ancient name:

Location: Cisjordan region. 32.460004, 35.558172.

Period(s): LB I (IAA site 23830/0; Zori 1962: 159-161; DAAHL site 353202336).

Site size: 1.2 hectares (DAAHL site 353202336).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 20

Estimated total residential population: 482 (0.67 village multiplier x 720)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 450 (rounded)

Overall site population density: 375 people per hectare

366) Site: Masiq, Khirbet. Ain al Arab. Masha, Khirbet. Horvat Meseh.

Ancient name:

Location: Lake Kinnereth region. 32.67537, 35.434067.

Period(s): LB (IAA site 27883/0).

Site size: 1.6 hectares (Thompson 1979: 129).

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 26

Estimated total residential population: 627 (0.67 village multiplier x 936).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 375 people per hectare

367) Site: Masos, Tel. Khirbet Meshash.

Ancient name:

Location: Southern Desert region. 31.214279, 34.966562.

Period(s): LB II (Kempinski 1978: 29-33).

Site size: 6 hectares (Kempinski 1978: 29-33).

Fortification reduction: 10% mound reduction (5.4 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 90

Estimated total residential population: 3,240

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,250 (rounded)

Overall site population density: 542 people per hectare

368) Site: Masud, Khirbet. Wadi Masud.

Ancient name:

Location: Central Canaan region. 32.442096, 35.109149.

Period(s): LB (Epstein and Gutman 1972: 291).

Site size: 0.2 hectares (DAAHL site 353202067).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population:

Overall site population density: 250 people per hectare

369) Site: Matabi, Tell el.

Ancient name:

Location: Transjordan region. 31.84096, 35.683491.

Period(s): LB (MEGA 5086).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

370) Site: Mathane, Tell el.

Ancient name:

Location: Beqa Valley region. 34.143457, 36.271414.

Period(s): LB I, LB II (Marfoe 1995: 265; DAAHL site 363400356).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

371) Site: Mawalih. Maapil.

Ancient name:

Location: Central Canaan region. 32.369133, 34.977394.

Period(s): LB (IAA site 25014/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

372) Site: Mayita, Ain el.

Ancient name:

Location: Transjordan region. 32.162839, 35.827268.

Period(s): LB I (MEGA 11355).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

373) Site: Mazar, Tall el.

Ancient name:

Location: Transjordan region. 32.222273, 35.606254.

Period(s): LB (Van der Steen 2004: 233-234; MEGA 2662).

Site size: 0.4 hectares (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 125 people per hectare

374) Site: Mearot, Nahal. (U)

Ancient name:

Location: Mediterranean Coastal region. 32.668759, 34.926722.

Period(s): LB (IAA site 14784/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

375) Site: Medineh, Deir el. Dahr al Madina. (S)

Ancient name:

Location: Transjordan region. 32.31855, 35.825042.

Period(s): LB I, LB II (Kafafi 2007: Table 1; MEGA 11442).

Site size: hectares

Fortification reduction:

Site division: Shrine

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population: Temporary ?

Estimated total maximum site population: 0

Overall site population density:

376) Site: Megadim, Tel. Tall Zamr.

Ancient name:

Location: Mediterranean Coastal region. 32.724643, 34.947841.

Period(s): LB I, LB II (Wolff 2000: 23; DAAHL site 343200072).

Site size: 1.0 hectares (DAAHL site 343200072; Thompson 1979: 115).¹⁶⁷

Fortification reduction: 10% mound reduction (0.9 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 540

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 500 (rounded)

Overall site population density: 500 people per hectare

377) Site: Megiddo. Tel Megiddo. Tell al Mutesellim.

¹⁶⁷ 3 hectares according to Thompson, plus a lower city, which would expand the LB site size.

Ancient name: Megiddo/Magida (Thutmose III Karnak list I: 2; Thutmose III Gebel Barkal Stele Urk IV 1234:17; Amenhotep II Memphis annals Urk IV 1308:11; Papyrus Leningrad 1116A vs: 68, 185; Papyrus Anastasi I 23:1; Wadi Abbad list of Seti I: 5; EA 242, 243, 244, 245; Taanach letter 5; Bogazkoy No. 86; Joshua 12:21; Judges 5:19).

Location: Central Canaan region. 32.585562, 35.184573.

Period(s): LB I, LB II (Finkelstein et al. 2006: 2-5, Table 1.1, Table 5.1)

Site size: 12 hectares (GIS; Goren 2004: 350; DAAHL site 353202439).¹⁶⁸

Fortification reduction: 10% mound and rampart reduction (6 hectare mound to 5.4 hectares, 6 hectare lower city to 5.4 hectares, 10.8 total).

Site division: 85% residential, 15% other

Total insulae in residential district: 192

Estimated total residential population: 6,912

Palace population: 50 ?

Garrison population: 200 ?¹⁶⁹

Temple population: 5 ?

Estimated total maximum site population: 7,050 (rounded)

Overall site population density: 588 people per hectare

378) Site: Meidan, Tell.

Ancient name:

Location: Transjordan region. 32.168954, 35.623423.

Period(s): LB I, LB II (Van der Steen 2004: 224; MEGA 9491).

Site size: 3.5 hectares (GIS).

Fortification reduction: 10% mound reduction (3.1 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 52

Estimated total residential population: 1,872

Palace population:

¹⁶⁸ Includes mound and lower city. The LB site may have been as large as 16 hectares, but definitive evidence is lacking at this time.

¹⁶⁹ Additional military forces may have been stationed in the area around Megiddo.

Garrison population:

Temple population:

Estimated total maximum site population: 1,850 (rounded)

Overall site population density: 529 people per hectare

379) Site: Melilot.

Ancient name:

Location: Southern Desert region. 31.372321, 34.591118.

Period(s): LB (IAA site 6421/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

380) Site: Menora, Tel. Tell Kefar Qarnayim. Tell Abu Faraj.

Ancient name:

Location: Cisjordan region. 32.425419, 35.523042.

Period(s): LB (IAA site 27724/0, IAA site 7138/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

381) Site: Menorim, Horvat.

Ancient name:

Location: Lake Kinnereth region. 32.766771, 35.533376.

Period(s): LB (Braun and Porath 1988: 110).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

382) Site: Merun, Khirbet. Meron.

Ancient name:

Location: Central Canaan region. 32.983045, 35.438502.

Period(s): LB (Thompson 1979: 84).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

383) Site: Mevorakh, Tel. Tell Mubarak. (S)

Ancient name:

Location: Mediterranean Coastal region. 32.533771, 34.926641.

Period(s): LB I, LB II (Stern 1984: 4-9)

Site size: 0.1 hectares (Stern 1984: 1; GIS; DAAHL site 343200074).

Fortification reduction:

Site division: Shrine

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population: Temporary?

Estimated total maximum site population: 0

Overall site population density:

384) Site: Mezarim, Horvat. el Mazar.

Ancient name:

Location: Central Canaan region. 32.529194, 35.363235.

Period(s): LB (Zori 1977: 6-7).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

385) Site: Mhallah, Khirbet. Khirbet Mhallal.

Ancient name:

Location: Cisjordan region. 32.346308, 35.464274.

Period(s): LB (Zertal 2008: 261-263).

Site size: 1.5 hectares (Zertal 2008: 261-263).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 603 (0.67 village multiplier x 900)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 400 people per hectare

386) Site: Midrakh Oz. Tel Jikhash.

Ancient name:

Location: Central Canaan region. 32.597214, 35.158915.

Period(s): LB (IAA site 6112/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

387) Site: Miilya, Khirbet. Miilia.

Ancient name:

Location: Central Canaan region. 33.024277, 35.260325.

Period(s): LB I, LB II (Frankel 1994: 25; Thompson 1979: 80).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

388) Site: Mikhal, Tel. Tell Michal. Tell Makmish.

Ancient name: Mishal? (Thutmose III Karnak list I: 39; Papyrus Leningrad 1116A vs: 73; Joshua 19:26).

Location: Central Canaan region. 31.801794, 34.798051.

Period(s): LB I, LB II (Herzog 1989: 29, 38, 41; Herzog et al. 1978: 44-49).

Site size: 6 hectares? (Herzog et al. 1978: 44-45).¹⁷⁰

Fortification reduction: 20% general reduction (4.8 hectares).¹⁷¹

¹⁷⁰ Includes lower city and additional mounds. Main mound is much smaller.

¹⁷¹ The MB and LB city may have eroded (Herzog 1989: 29) and it is difficult to judge exactly what the fortifications were composed of—mounds only, ramparts, etc. Thus, a general reduction on the high side to prevent inflated population figures is used.

Site division: 80% residential, 20% other
 Total insulae in residential district: 80
 Estimated total residential population: 2,880
 Palace population: 20 ?
 Garrison population:
 Temple population: 5 ?
 Estimated total maximum site population: 2,900 (rounded)
 Overall site population density: 483 people per hectare

389) Site: Mikhmoret, Tel. Minet Abu Zaburah.

Ancient name:
 Location: Mediterranean Coastal region. 32.400264, 34.866838.
 Period(s): LB (IAA site 1190/0).
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

390) Site: Mimas, Tell.

Ancient name:
 Location: Central Canaan region. 32.965683, 35.151581.
 Period(s): LB (Frankel et al 2001:13).
 Site size: hectares
 Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

391) Site: Miqneh, Tel. Tel Mikne. Tell Muqanna.

Ancient name: Ekron/Ekron? (Joshua 13:45; Judges 1:18).

Location: Central Canaan region. 31.780569, 34.851034.

Period(s): LB I, LB II (Dothan and Gitin 2012: 3).

Site size: 4 hectares (Dothan and Gitin 2012: 2-3).¹⁷²

Fortification reduction: 10% mound reduction (3.6 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 60

Estimated total residential population: 2,160

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,150 (rounded)

Overall site population density: 538 people per hectare

392) Site: Miqwaq.

Ancient name:

Location: Cisjordan region. 32.334184, 35.380879.

Period(s): LB I (Zertal 1996: 198-99).

Site size: 0.65 hectares (Zertal 2008: 206-208).¹⁷³

¹⁷² Only acropolis occupied in Late Bronze Age.

Fortification reduction: 10% for walls (0.6 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 10

Estimated total residential population: 360¹⁷⁴

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 538 people per hectare

393) Site: Miskeh, Tell. Tell Miski. Tell Miska. Tell el Qaziya. Tell el Kahiyeh.

Ancient name:

Location: Cisjordan region. 32.235837, 35.39387.

Period(s): LB II (Zertal 1996: 412-15; Campbell 1991; Glueck 1951: 422).

Site size: 1.6 hectares (Zertal 2008: 451-454).

Fortification reduction: 10% mound reduction (1.4 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 23

Estimated total residential population: 828

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 800 (rounded)

Overall site population density: 500 people per hectare

394) Site: Mistah, Tell al. Tell al Mustah.

Ancient name:

Location: Transjordan region. 31.904512, 35.638709.

¹⁷³ One site divided into two sections by Zertal, combined here into one settlement.

¹⁷⁴ This is a walled village. Thus, there is no use of the unbounded village multiplier.

Period(s): LB (MEGA 2687).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

395) Site: Mizpe Yonah. Nebi Yunis.

Ancient name:

Location: Mediterranean Coastal region. 31.816728, 34.651291.

Period(s): LB (Goren 2004: 341).

Site size: 0.5 hectares (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 100 people per hectare

396) Site: Moghraqa.

Ancient name:

Location: Mediterranean Coastal region. 31.472547, 34.415692.

Period(s): LB (Goren 2004: 355).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

397) Site: Mordekhay, Kefar.

Ancient name:

Location: Central Canaan region. 31.832759, 34.758375.

Period(s): LB (IAA site 29353/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

398) Site: Moza. Qaluniya.

Ancient name:

Location: Cisjordan region. 31.7935, 35.164123.

Period(s): LB (Finkelstein and Magen 1993: 31).

Site size: 3 hectares (Finkelstein and Magen 1993: 31).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 50

Estimated total residential population: 1,206 (0.67 village multiplier x 1,800)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,200 (rounded)

Overall site population density: 400 people per hectare

399) Site: Muajameh, Tell. Maajajeh.

Ancient name:

Location: Transjordan region. 32.402945, 35.563847.

Period(s): LB (MEGA 9595).

Site size: 1.3 hectares (GIS)

Fortification reduction: 10% mound reduction (1.1 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 648

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 462 people per hectare

400) Site: Mudawar, Tell Abu.

Ancient name:

Location: Lake Kinnereth region. 32.822949, 35.729258.

Period(s): LB (IAA site 4019/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

401) Site: Mudawarra, Rujm.

Ancient name:

Location: Transjordan region. 31.996307, 35.965042.

Period(s): LB II (MEGA 6968; DAAHL site 353100630).

Site size: 0.4 hectares? (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 125 people per hectare

402) Site: Muhaffar, Tell. Khirbet el Muhafar.

Ancient name:

Location: Central Canaan region. 32.44283, 35.217575.

Period(s): LB II (Zertal 1992: 108-111).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

403) Site: Mughaiyir, Khirbet.

Ancient name:

Location: Central Canaan region. 32.691638, 35.404799.

Period(s): LB (Zori 1977: 149-151).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

404) Site: Mughayir, Tall el.

Ancient name:

Location: Transjordan region. 32.607852, 35.93365.

Period(s): LB (MEGA 2804).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

405) Site: Mughr ed Duruz. Mearot Druzim. Nahal Makhabram.

Ancient name:

Location: Lake Kinnereth region. 33.018501, 35.552916.

Period(s): LB

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

406) Site: Mugrabi, Tell. Tell Mughrabi. Tel Mor.

Ancient name: Ashdod-Yam?

Location: Mediterranean Coastal region. 31.823196, 34.656327.

Period(s): LB I, LB II (IAA site 211/0, 27559/0, 27560/0; DAAHL site 343100218).

Site size: 0.6 hectares (Cline and Yassur-Landau 2009: 1-4; DAAHL site 343100218).¹⁷⁵

Fortification reduction:

Site division: Outpost¹⁷⁶

Total insulae in residential district:

Estimated total residential population: 200?

Palace population:

Garrison population: 100

Temple population:

Estimated total maximum site population: 300

Overall site population density: 500 people per hectare

407) Site: Muntar. Munthar.

Ancient name:

Location: Cisjordan region. 32.305244, 35.352114.

Period(s): LB (Zertal 1992: 329-33).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

408) Site: Musharifa, Khirbet. Khirbet Musheirefeh. Mizpe Zevulun.

¹⁷⁵ The site has eroded to approximately 0.1 hectares at the top of the mound.

¹⁷⁶ Considered an Egyptian garrison which also included some civilians, perhaps the families of the soldiers.

Ancient name:

Location: Central Canaan region. 32.74563, 35.206707.

Period(s): LB (IAA site 23053/0).

Site size: 0.8 hectares (Thompson 1979: 70-71, 120).

Fortification reduction:

Site division: 80% residential, 20% other

Total insulae in residential district: 13

Estimated total residential population: 313 (0.67 village multiplier x 468)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 300 (rounded)

Overall site population density: 375 people per hectare

409) Site: Musrara, Khirbet. Horvat Zeror.

Ancient name:

Location: Central Canaan region. 32.685502, 35.142902.

Period(s): LB (IAA site 6830/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

410) Site: Muzabal.

Ancient name:

Location: Transjordan region. 32.348429, 35.774203.

Period(s): LB I (MEGA 5863).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

411) Site: Naameh, Tell. Tell Naama. Tell Naima.

Ancient name: Naaman? (Thutmose III Karnak list I: 84; Split list of Seti I: B41)

Location: Lake Kinnereth region. 33.175614, 35.594721.

Period(s): LB (IAA site 28063/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

412) Site: Nabaa, Tell en.

Ancient name:

Location: Beqa Valley region. 34.140545, 36.272713.

Period(s): LB (Marfoe 1995: 265-66).

Site size: 0.3 hectares (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

413) Site: Nabaa, Litani, Tell. Nebaa Litani, Tell.

Ancient name:

Location: Beqa Valley region. 34.013734, 36.100607.

Period(s): LB I, LB II (Marfoe 1995: 250; DAAHL site 363400362).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

414) Site: Nagila, Tel. Tell Najila.

Ancient name:

Location: Central Canaan region. 31.503172, 34.757779.

Period(s): LB I, LB II (IAA site 809/0; DAAHL site 343100221).

Site size: 4 hectares (DAAHL site 343100221; GIS).

Fortification reduction: 10% mound reduction (3.6 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 60

Estimated total residential population: 2,160

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,150 (rounded)

Overall site population density: 538 people per hectare

415) Site: Nahalal. Ain el Beida.

Ancient name:

Location: Central Canaan region. 32.677418, 35.178761.

Period(s): LB (IAA site 2725/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

416) Site: Nahariya, Tell.

Ancient name: Helbah? (Judges 1:31)

Location: Mediterranean Coastal region. 33.007638, 35.089298.

Period(s): LB I, LB II (IAA site 2330/0; Thompson 1979: 78; DAAHL site 353300061).

Site size: 3.4 hectares (DAAHL site 353300061).

Fortification reduction: 10% mound reduction (3.0 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 50

Estimated total residential population: 1,800

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,800

Overall site population density: 529 people per hectare

417) Site: Nahf.

Ancient name:

Location: Central Canaan region. 32.937486, 35.304927.

Period(s): LB (Thompson 1979: 82).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

418) Site: Nahl, Tell el. Tell Nahal. Tell Nahkl.

Ancient name: Achshaph? (Thutmose III Karnak List, I: 40a, b, c; Papyrus Leningrad 1116A vs:70, 187; EA 366, EA 367; Joshua 11:1).

Location: Mediterranean Coastal region. 32.799162, 35.070096.

Period(s): LB (Lehmann and Peilstocker 2012: 18; IAA site 2265/0).

Site size: 2 hectares (Lehmann and Peilstocker 2012: 18).¹⁷⁷

Fortification reduction: 10% mound reduction (1.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

419) Site: Nahr el Kelb. (C)

Ancient name:

Location: Mediterranean Coastal region. 33.955766, 35.599456.

Period(s): LB (Genz and Sader 2008: 275).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

¹⁷⁷ The site was likely originally larger, but it is now buried in alluvial sediments.

420) Site: Nahshonim. Mazor.

Ancient name:

Location: Central Canaan region. 32.057095, 34.935718.

Period(s): LB II (Peilstocker and Burke 2011: Figure 7.1; IAA site 1576/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

421) Site: Najjar, Khirbet.

Ancient name:

Location: Central Canaan region. 32.444115, 35.296728.

Period(s): LB (Zertal 1992: 152-154).

Site size: hectares

Fortification reduction:

Site division: N/A¹⁷⁸

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

¹⁷⁸ MB III site estimated at 2.5 hectares (DAAHL site 353202085).

Overall site population density:

422) Site: Nami, Tel. Jazirat en Nami.

Ancient name: Anamim? (Ramesseum List: 9).

Location: Mediterranean Coastal region. 32.660482, 34.925542.

Period(s): LB I, LB II (Artzy 1990: 50-59; IAA site 1520/0; DAAHL site 343200083).

Site size: 2.5 hectares? (GIS).¹⁷⁹

Fortification reduction: 10% mound reduction (2.2 hectares).

Site division: 50% residential, 50% other¹⁸⁰

Total insulae in residential district: 23

Estimated total residential population: 828

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 800 (rounded)

Overall site population density: 320 people per hectare

423) Site: Nasbeh, Tell en.

Ancient name:

Location: Cisjordan region. 31.88511,35.216694

Period(s): LB II (McCown 1947: 180; Aharoni 1982: 174).

Site size: 2.5 hectares (Finkelstein and Magen 1993: 31).¹⁸¹

Fortification reduction: 10% mound reduction (2.2 hectares).

Site division: Outpost?¹⁸²

Total insulae in residential district:

Estimated total residential population:

¹⁷⁹ Estimate based on circumference and underwater remains. Currently only about 0.4 hectares or less remains above water (DAAHL site 343200083).

¹⁸⁰ Perhaps used as a port?

¹⁸¹ The LB site may have been smaller.

¹⁸² Since LB material is sparse, the site may not have been a standard town in the Late Bronze Age. Therefore, the possibility of an outpost rather than a town is suggested.

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 20 people per hectare

424) Site: Nazareth. (C)

Ancient name:

Location: Central Canaan region. 32.700355, 35.304601.

Period(s): LB (Thompson 1979: 124).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

425) Site: Nebaa Shaad, Tell

Ancient name:

Location: Beqa Valley region. 34.134244, 36.232314.

Period(s): LB (Marfoe 1995: 260-61).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

426) Site: Nekheil, Tall en (South).

Ancient name:

Location: Transjordan region. 32.220607, 35.585274.

Period(s): LB (MEGA 2755).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

427) Site: Neshev, Ain. Ain Nishshabi.

Ancient name:

Location: Cisjordan region. 32.461806, 35.501256.

Period(s): LB II (IAA site 3531/0).

Site size: 0.4 hectares? (DAAHL site 353202248).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

428) Site: Netanya (U).

Ancient name:

Location: Mediterranean Coastal region. 32.325128, 34.84702.

Period(s): LB (IAA site 42333/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

429) Site: Netiv Ha Asara.

Ancient name:

Location: Mediterranean Coastal region. 31.574623, 34.546484.

Period(s): LB I, LB II (Yasur-Landau and Shavit 1999: 81).

Site size: 3 hectares (Yasur-Landau and Shavit 1999: 80).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 50

Estimated total residential population: 1,800

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,800

Overall site population density: 600 people per hectare

430) Site: Netivot.

Ancient name:

Location: Southern Desert region. 31.416578, 34.601213.

Period(s): LB (Goren 2004: 355).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

431) Site: Nijrah, Tell Abu.

Ancient name:

Location: Transjordan region. 32.205861, 35.584142.

Period(s): LB II (Van der Steen 2004: 223; MEGA 9501)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

432) Site: Nimrin, Tell.

Ancient name:

Location: Transjordan region. 31.901042,35.624755

Period(s): LB (Yassine 2011: 5; MEGA 2689).

Site size: 5 hectares? (Yassine 2011: ix).¹⁸³

Fortification reduction: 10% mound reduction (4.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 36

Palace population:

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,700 (rounded)

Overall site population density: 540 people per hectare

433) Site: Nimrod, Tell. Tel Nimrud. Dabbat el Khurrei.

Ancient name:

Location: Cisjordan region. 32.486656, 35.554541.

Period(s): LB (IAA site 23665/0, 23666/0, 23667/0, 23668/0, 23663/0, 23664/0).

Site size: hectares

Fortification reduction:

Site division: N/A

¹⁸³ Estimate of original size. Site has been partially destroyed by building activities. The LB site appears to have reused structures and fortifications built in MB III.

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

434) Site: Nir Israel.

Ancient name:

Location: Central Canaan region. 31.691795, 34.637005.

Period(s): LB (IAA site 16856/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

435) Site: Nissa, Tell. Tel Nisa. Tell Manshiya.

Ancient name:

Location: Cisjordan region. 32.488488, 35.517971.

Period(s): LB (Zori 1962: 171-172; IAA site 3577/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

436) Site: Nisya, Khirbet. Khirbet Nisieh.

Ancient name:

Location: Cisjordan region.

Period(s): LB I, LB II (Livingston 1994: 159; Livingston 2003: 36–43).

Site size: 0.3 hectares? (Livingston 1994: 159; Livingston 2003: 36–43).¹⁸⁴

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 50 people per hectare

437) Site: Nizzanim. Nisanim.

Ancient name:

Location: Mediterranean Coastal region. 31.740556, 34.614982.

Period(s): LB I (Goren 2004: 342; IAA site 16840/0).

Site size: hectares

¹⁸⁴ The LB site size was considerably smaller than later periods. Only a few LB sherds were found after years of excavation.

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

438) Site: Nkheil, Tell en.

Ancient name:

Location: Transjordan region. 32.406637, 35.699804.

Period(s): LB I, LB II (Van der Steen 2004: 220).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

439) Site: Nurieh, Tell. Tel Nuriah. Tel Nurit.

Ancient name:

Location: Central Canaan region. 32.379248, 34.953062.

Period(s): LB I (IAA site 1654/0; Porat et al 1985:150-154; Gophna and Kokhavi 1966: 143).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

440) Site: Obed, Tel.

Ancient name:

Location: Mediterranean Coastal region. 31.586257, 34.594898.

Period(s): LB (Allen 2008: 30, 58).

Site size: 4 hectares? (Allen 2008: 30, 58).¹⁸⁵

Fortification reduction: 10% mound reduction (3.6 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 60

Estimated total residential population: 2,160

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,150 (rounded)

Overall site population density: 538 people per hectare

441) Site: Otniel

Ancient name:

¹⁸⁵ Extent of LB sherd scatter at the site was recorded at 16 hectares. It is probable that the LB site was smaller, but the sherd scatter was widened due to agricultural activity. 4 hectares at a 25% reduction has been assigned on this assumption. Satellite photos provided no assistance.

Location: Cisjordan region. 31.441195, 35.036086.

Period(s): LB (DAAHL site 353107380).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

442) Site: Palmahim. (C)

Ancient name:

Location: Mediterranean Coastal region. 31.912563, 34.691142.

Period(s): LB I, LB II (Yannai et al. 2013: 9-55; IAA site 680/0).

Site size: hectares

Fortification reduction:

Site division: Cemetery¹⁸⁶

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

443) Site: Parod. Tawahin Farradiya. (C)

¹⁸⁶ There may also have been a settlement here during the Late Bronze Age, but the current evidence is not clear.

Ancient name:

Location: Central Canaan region. 32.932732, 35.434488.

Period(s): LB (Thompson 1979: 92).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

444) Site: Parur, Tell. Khirbet Fureir.

Ancient name:

Location: Central Canaan region. 32.628953, 35.103372.

Period(s): LB (Goren 2004: 339).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

445) Site: Pella. Khirbet Fahl.

Ancient name: Pehal/Pella (Thutmose III Karnak list I: 33; Soleb list of Amenhotep III: 9a1; Horemheb Karnak list: a13; Seti I el-Qurne (northern sphinx): 15; Ramesses II Karnak list: 26; Amara West list of Rameses II: 11; Papyrus Anastasi IV 16:11; EA 256).

Location: Transjordan region. 32.451087, 35.613485.

Period(s): LB I, LB II (Van der Steen 2004: 68-70; Smith and Potts 1992: 37-40, 47-81).

Site size: 7 hectares (DAAHL site 353202394).

Fortification reduction: 10% mound reduction (6.3 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 105

Estimated total residential population: 3,780

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,800 (rounded)

Overall site population density: 543 people per hectare

446) Site: Poleg, Tel.

Ancient name:

Location: Central Canaan region. 32.257523, 35.053529.

Period(s): LB I, LB II (IAA site 36527/0; DAAHL site 353202190).

Site size: 1.2 hectares (DAAHL site 353202190).

Fortification reduction: 10% mound reduction (1.0 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550 (rounded)

Overall site population density: 458 people per hectares

447) Site: Poran, Tel. Tell el Farani. El Abtah.

Ancient name:

Location: Mediterranean Coastal region. 31.708892, 34.61486.

Period(s): LB (IAA site 480/0).

Site size: 12 hectares (Gophna 1992: 267).

Fortification reduction: 10% mound reduction (10.8 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 192

Estimated total residential population: 6,912

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 6,900 (rounded)

Overall site population density: 575 people per hectare

448) Site: Qaadan, Tell. Tell Qurdan.

Ancient name:

Location: Transjordan region. 32.201236, 35.624219.

Period(s): LB I, LB II (Van der Steen 2004: 221; MEGA 2757, 2758).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

449) Site: Qabb Elias, Tell.

Ancient name:

Location: Central Canaan region. 33.792353, 35.816738.

Period(s): LB (Marfoe 1995: 223).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

450) Site: Qadas, Tell. Tel Qedesh.

Ancient name: Kedesh/Guddashuna? (EA 177; Joshua 20:7; Judges 4:6).

Location: Central Canaan region. 33.106461, 35.522422.

Period(s): LB (Thompson 1979:74, 76; Aharoni 1957: 12-14)

Site size: 10 hectares (Thompson 1979: 74).

Fortification reduction: 10% mound reduction (9 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 160

Estimated total residential population: 5,760

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 5,750 (rounded)

Overall site population density: 575 people per hectare

451) Site: Qadish, Khirbet.

Ancient name:

Location: Lake Kinnereth region. 32.734291, 35.554840.

Period(s): LB (Goren 2004: 341; Thompson 1979: 129).

Site size: 2 hectares? (Thompson 1979: 129).¹⁸⁷

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 796 (0.67 village multiplier x 1,188).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 750 (rounded)

Overall site population density: 375

452) Site: Qafqafa. (C)

Ancient name:

Location: Transjordan region. 32.350713, 35.940412.

Period(s): LB II (Kafafi 2007: Table 1).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

¹⁸⁷ The LB site may have been slightly smaller.

Overall site population density:

453) Site: Qana, Tel. Tell el Mukhmar.

Ancient name:

Location: Central Canaan region. 32.129653, 34.888994.

Period(s): LB (Van den Brink 2007; Gophna and Ayalon 1998: 44-51)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

454) Site: Qana (T)

Ancient name: Kanah/Qana (Kanah/Qana. Ramesseum of Ramesses II: 6. Joshua 19:28).

Location: Mediterranean Coastal region. 33.209339, 35.299798.

Period(s): LB (Textual only)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

455) Site: Qanu. (T)

Ancient name: Qanu (Thutmose III Karnak list I: 26; Kom el-Hetan list of Amenhotep III: BNr 6; Amara West list of Ramesses II: 7; EA 204; Kenath of Numbers 32:42?; Nobah of Judges 8:11?).

Location: Hauran Plateau and Anti-Lebanon region. 32.753688, 36.604288.

Period(s): LB I, LB II (Textual only)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 2,000?¹⁸⁸

Overall site population density:

456) Site: Qaq.

Ancient name:

Location: Transjordan region. 32.60501, 35.673174.

Period(s): LB II (MEGA 10641).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

¹⁸⁸ Possible population based on textual prominence and comparison to other cities and towns.

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

457) Site: Qasir.

Ancient name:

Location: Transjordan region. 32.078875, 35.819058.

Period(s): LB I, LB II (MEGA 11325).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

458) Site: Qasr Bardawil.

Ancient name:

Location: Lake Kinnereth region. 32.820961, 35.7428.

Period(s): LB (IAA site 4037/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

459) Site: Qaun, Tell.

Ancient name:

Location: Cisjordan region. 32.40511, 35.46451.

Period(s): LB (DAAHL site 353203591).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

460) Site: Qataf, Tel. Tell el Qitaf.

Ancient name:

Location: Cisjordan region. 32.461792, 35.55739.

Period(s): LB (Zori 1962: 158-159).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

461) Site: Qeisharun, Khirbet. Horvat Qishron.

Ancient name:

Location: Lake Kinnereth region. 32.765174, 35.409685.

Period(s): LB I (IAA site 27715/0, 27716/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

462) Site: Qeshet, Tel.

Ancient name:

Location: Central Canaan region. 31.53339, 34.766899.

Period(s): LB (Bunimovitz 1989: 129).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

463) Site: Qiri, Tel. Tell Qira. Swtseila. Ain Mahshura. Mughr. Ha Zorea.

Ancient name:

Location: Central Canaan region. 32.645843, 35.112984.

Period(s): LB (Ben-Tor and Portugali 1987: 257-259; IAA site 23056/0).

Site size: 2.25 hectares (Ben-Tor and Portugali 1987: 5).

Fortification reduction: 10% mound reduction (2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 1,188

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,150 (rounded)

Overall site population density: 511 people per hectare

464) Site: Qiryat Ata.

Ancient name:

Location: Central Canaan region. 32.798999, 35.109125.

Period(s): LB (Golani 1995: 30).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

465) Site: Qiryat Shemona (South).

Ancient name:

Location: Lake Kinnereth region. 33.20038, 35.577503.

Period(s): LB (IAA site 32459/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

466) Site: Qiryat Yearim, Tell. Deir el Azar. Deir el Azhar.

Ancient name: Qiryath Yearim? (Joshua 9:17).

Location: Cisjordan region. 31.81088, 35.099735.

Period(s): LB (IAA site 2350/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

467) Site: Qishyon, Tel. Tell Kasyun. Qishon. Kishon. el Khirba.

Ancient name:

Location: Central Canaan region. 32.655202, 35.391423.

Period(s): LB (IAA site 22910/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

468) Site: Qitneh. Qithneh.

Ancient name:

Location: Central Canaan region. 32.430879, 35.277214.

Period(s): LB I (Goren 2004: 350; DAAHL site 353203530)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

469) Site: Qos, Tell el.

Ancient name:

Location: Transjordan region. 32.244049, 35.620388.

Period(s): LB (MEGA 4603).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

470) Site: Qraye. (C)

Ancient name:

Location: Mediterranean Coastal region. 33.542892, 35.42366.

Period(s): LB I, LB II (Genz and Sader 2008: 276).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 0
 Overall site population density:

471) Site: Qubur el Kirad. Jiara. Bannir. Sheik Ajami. Ain Zehorah. Givat Nuah.

Ancient name:
 Location: Central Canaan region. 32.599049, 35.110737.
 Period(s): LB (IAA site 2415/0).
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

472) Site: Qubur el Walaida. Qubur al Walaydah.

Ancient name:
 Location: Southern Desert region. 31.334076, 34.486200.
 Period(s): LB I, LB II (Lehmann et al. 2010: 141).
 Site size: 1.8 hectares (Lehmann et al. 2010: 138).
 Fortification reduction: None
 Site division: 80% residential, 20% other
 Total insulae in residential district: 30
 Estimated total residential population: 724 (0.67 village multiplier x 1,080)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 700 (rounded)

Overall site population density: 389 people per hectare

473) Site: Qumy, Khirbet.

Ancient name:

Location: Cisjordan region. 32.242373, 35.216921.

Period(s): LB I (Goren 2004: 353; DAAHL site 353204138).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

474) Site: Qurdana, Tell. Tell Kurdana. Tel Afiq. Tel Apheq.

Ancient name: Afiq/Afiq? (Ramesses II Karnak reliefs KRI II 157:16, Ramesses II Luxor reliefs KRI II 182:2; Joshua 19:30; Judges 1:31).

Location: Mediterranean Coastal region. 32.845928,35.11005.

Period(s): LB (Shalem 2008: 93-114; Thompson 1979: 91; IAA site 2425/0).¹⁸⁹

Site size: 1.75 hectares? (DAAHL site 353202650).¹⁹⁰

Fortification reduction: 10% mound reduction (1.5 hectares).

¹⁸⁹ Cemetery and site occupation in LB.

¹⁹⁰ Site size recorded for MB III.

Site division: 80% residential, 20% other
 Total insulae in residential district: 25
 Estimated total residential population: 900
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 900
 Overall site population density: 514 people per hectare

475) Site: Qusibiyya el Jadida. Tell Saluqiyya.

Ancient name:
 Location: Lake Kinnereth region. 32.982595, 35.73435.
 Period(s): LB (IAA site 4045/0).
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

476) Site: Rabi, Tell er.

Ancient name:
 Location: Transjordan region. 32.192261, 35.593589.
 Period(s): LB (MEGA 9508).
 Site size: hectares
 Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

477) Site: Rabud, Khirbet. Abu el Asjah. Dvir.

Ancient name: Debir? (Joshua 12:13; Judges 1:11).

Location: Cisjordan region. 31.4326, 35.014897.

Period(s): LB I, LB II (Kochavi 1974b: 2-33; IAA site 2004/0).

Site size: 6.8 hectares (DAAHL site 353102607).

Fortification reduction: 10% mound reduction (6.1 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 102

Estimated total residential population: 3,672

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,650 (rounded)

Overall site population density: 537 people per hectare

478) Site: Radgha, Tell. Tell Ridgha. Tel Shalem. Tell el Alya. Horvat Alal.

Ancient name: Shalema? (Ramesseum of Ramesses II: 18)

Location: Cisjordan region. 32.39929, 35.526619.

Period(s): LB (IAA site 3600/0; IAA site 3598/0).

Site size: 1.7 hectares (DAAHL site 353202383).¹⁹¹

¹⁹¹ Site size throughout MB. No site size info given for LB.

Fortification reduction: 10% mound reduction (1.5 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 900

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 900

Overall site population density: 529 people per hectare

479) Site: Rafah. Tell Rafah.

Ancient name: Rapihu. (Soleb list of Amenhotep III: a3; Seti I Karnak lists: 65, 67, and Seti map; Papyrus Anastasi I 27:7-8; Aksha list of Ramesses II: 90).

Location: Mediterranean Coastal region. 31.297851, 34.230639.

Period(s): LB I, LB II (Thompson 1979: 387).¹⁹²

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 500 LB I? 1,000 LB II?¹⁹³

Overall site population density:

480) Site: Rahaya, Khirbet.

Ancient name:

¹⁹² Remains from mound and site to the NW, which may have been a lower city or part of the port.

¹⁹³ Estimate based on textual prominence and comparison to similar sites.

Location: Cisjordan region. 32.046383, 35.369968.

Period(s): LB (Finkelstein and Lederman 1997: 791).

Site size: 0.3 hectares (Finkelstein and Lederman 1997: 791).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 50 people per hectare

481) Site: Ramat Eliyahu.

Ancient name:

Location: Mediterranean Coastal region. 31.985693, 34.788269.

Period(s): LB (Peilstocker and Burke 2011: Figure 7.1).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

482) Site: Ramat Gan.

Ancient name:

Location: Mediterranean Coastal region. 32.088401, 34.812314.

Period(s): LB (Peilstocker and Burke 2011: Figure 7.1).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

483) Site: Ramia.

Ancient name:

Location: Central Canaan region. 33.110733, 35.310979.

Period(s): LB (Goren 2004: 348).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

484) Site: Raqqat, Tel. Khirbet al Qunetira.

Ancient name:

Location: Lake Kinnereth region. 32.798007, 35.515621.

Period(s): LB (Thompson 1979: 107-108).

Site size: 0.5 hectares? (Thompson 1979: 107).

Fortification reduction: 10% mound reduction (0.4 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 6

Estimated total residential population: 216

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 200 (rounded)

Overall site population density: 400 people per hectare

485) Site: Rawiyeh. Rawiyya.

Ancient name:

Location: Lake Kinnereth region. 33.118427, 35.678845.

Period(s): LB (IAA site 3916/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

486) Site: Ras, Khirbet el.

Ancient name:

Location: Central Canaan region. 31.559554, 34.956494.

Period(s): LB (Dagan 1992: 178-179).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

487) Site: Refaim, Har.

Ancient name:

Location: Cisjordan region. 31.734737, 35.102427.

Period(s): LB (IAA site 7549/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

488) Site: Refeif, Tell.

Ancient name:

Location: Transjordan region. 32.505333, 35.616672.

Period(s): LB (MEGA 4716).

Site size: 0.2 hectares? (GIS)

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 250 people per hectare

489) Site: Regev, Tel. Harbaj, Tell.

Ancient name: Helkath/Helqatu? (Thutmose III Karnak list I: 112; Joshua 21:31).

Beth Dagan? (Medinet Habu list of Ramesses III: 72; Joshua 19:27).

Location: Mediterranean Coastal region. 32.75884, 35.090328.

Period(s): LB I, LB II (Lehmann and Peilstocker 2012: 18; Goren 2004: 340; Thompson 1979: 105; DAAHL site 353202663).

Site size: 3.6 hectares (DAAHL site 353202663; GIS; Lehmann and Peilstocker 2012: 18).¹⁹⁴

Fortification reduction: 10% mound reduction (3.2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 53

Estimated total residential population: 1,908

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,900 (rounded)

¹⁹⁴ An area of 3.6 hectares was measured around the mound. Lehmann and Peilstocker 2012 estimate the site at 2.5 hectares, but this may relate to an earlier period (perhaps EB).

Overall site population density: 528 people per hectare

490) Site: Rehil, Tall.

Ancient name:

Location: Transjordan region. 32.188307, 35.807379

Period(s): LB (MEGA 11368).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

491) Site: Rehov. Tel Rehob. Tell Sarem. Tell Sarim.

Ancient name: Rehob (Thutmose III Karnak list I: 87; Luxor list of Amenhotep II: B18; Seti I larger Beth Shean stele KRI I 12:10; Papyrus Anastasi IV 17:3; Taanakh letter 2:22; Joshua 21:31; Judges 1:31)

Location: Cisjordan region. 32.457343, 35.497979.

Period(s): LB I, LB II (DAAHL site 353202376).¹⁹⁵

Site size: 12 hectares (GIS).¹⁹⁶

Fortification reduction: 10% mound reduction (10.8 hectares).

Site division: 80% residential, 20% other¹⁹⁷

Total insulae in residential district: 181

¹⁹⁵ See the official excavation website (<http://www.rehov.org/Rehov/Results.htm>) for LB I and LB II occupation.

¹⁹⁶ 10.2 hectares includes both mounds (<http://www.rehov.org/Rehov/Results.htm>). The area in between, in which the excavators believe a gate may have been located, is not included in this size estimate.

¹⁹⁷ Because the site is composed of two separate mounds of slightly more than 5 hectares, plus an area in between, the percentages for under 10 hectare sites are used.

Estimated total residential population: 6,516

Palace population: 20 ?

Garrison population: 100 ?

Temple population: 5 ?

Estimated total maximum site population: 6,600 (rounded)

Overall site population density: 550 people per hectare

492) Site: Rekhash, Tel. Tell Muqarqash. Tell Mukharkhash.

Ancient name: Anaharath/Ana-uhartu (Thutmose Karnak List I: 52; Amenhotep II annals, Urk IV 1308: 15; Seti I Split list: A 31; Joshua 19:19).

Location: Cisjordan region. 32.653359, 35.466177.

Period(s): LB (IAA site 3423/0).

Site size: 4.0 hectares (GIS).¹⁹⁸

Fortification reduction: 10% mound reduction (3.6 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 60

Estimated total residential population: 2,160

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,150 (rounded)

Overall site population density: 538 people per hectare

493) Site: Ridan, Tel.

Ancient name:

Location: Mediterranean Coastal region. 31.381376, 34.285972

Period(s): LB I, LB II (DAAHL site 343100257).

Site size: 0.2 hectares (DAAHL site 343100257).

Fortification reduction:

¹⁹⁸ Also cited as 4 hectares (40 dunams) by the Rekhash Project <http://rekhash.com/html/about%20the%20site.html>

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 250 people per hectare

494) Site: Rigma, Khirbet.

Ancient name:

Location: Central Canaan region. 32.816881, 35.302922.

Period(s): LB (Thompson 1979: 106).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

495) Site: Rihab.

Ancient name:

Location: Transjordan region. 32.325001, 36.093408.

Period(s): LB I, LB II (Kafafi 2007: Table 1; Mittmann 1970: 120).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

496) Site: Rikabi, Tall er.

Ancient name:

Location: Transjordan region. 32.172034, 35.60849.

Period(s): LB I, LB II (Van der Steen 2004: 225; MEGA 9486).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

497) Site: Rish, Tell. Tel Risim. Tell Muwajeh.

Ancient name:

Location: Central Canaan region. 32.699814, 35.15708532.

Period(s): LB (IAA site 23043/0).

Site size: 3.5 hectares (DAAHL site 353202475).¹⁹⁹

¹⁹⁹ Site estimate for MB III. LB likely the same or similar if bounded by the mound.

Fortification reduction: 10% mound reduction (3.1 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 52

Estimated total residential population: 1,872

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,850 (rounded)

Overall site population density: 529 people per hectare

498) Site: Rishon Le Ziyon.²⁰⁰

Ancient name:

Location: Mediterranean Coastal region. 31.974153, 34.763616.

Period(s): LB (Goren 2004: 342-343).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

499) Site: Roeh, Tel. Ruyan.

Ancient name:

Location: Cisjordan region. 32.437827, 35.519721.

²⁰⁰ The Rishon Le Ziyon dune site, very nearby is also included. The MB II site was perhaps 16 hectares, but the size of the LB site is unknown.

Period(s): LB (Zori 1962: 167).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

500) Site: Rosh Mayim, Khirbet. Khirbet Rushmiya.

Ancient name:

Location: Mediterranean Coastal region. 32.789614, 34.998883.

Period(s): LB (Thompson 1979: 104).

Site size: 1.2 hectares? (Thompson 1979: 104).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 20

Estimated total residential population: 482 (0.67 village multiplier x 720)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 450 (rounded)

Overall site population density: 375 people per hectare

501) Site: Rujjam, Khirbet.

Ancient name:

Location: Central Canaan region. 32.437881, 35.168056

Period(s): LB (Goren 2004: 350; DAAHL site 353203515).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

502) Site: Rujm ed Darbi, Khirbet.

Ancient name:

Location: Central Canaan region. 31.651162, 34.816027.

Period(s): LB (Dagan 1992: 145-146).

Site size: 0.1 hectares (DAAHL site 343100166).²⁰¹

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 150 people per hectare

503) Site: Rujum, Khirbet el.

Ancient name:

²⁰¹ Size of MB III site. LB size not recorded.

Location: Central Canaan region. 32.377589, 35.040203.

Period(s): LB (Goren 2004: 346).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

504) Site: Ruma, Khirbet.

Ancient name:

Location: Central Canaan region. 32.788851, 35.292448.

Period(s): LB (Thompson 1979: 107).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

505) Site: Ruweisa, Khirbet. Tel Rosh.

Ancient name:

Location: Central Canaan region. 33.036388, 35.33057.

Period(s): LB I, LB II (Frankel 1994: 25; Thompson 1979: 73).

Site size: 3 hectares (DAAHL site 353300092).²⁰²

Fortification reduction: 10% mound reduction (2.7 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 45

Estimated total residential population: 1,620

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,600 (rounded)

Overall site population density: 533 people per hectare

506) Site: Saab. Shaab.

Ancient name:

Location: Central Canaan region. 32.890101, 35.246521.

Period(s): LB (Thompson 1979: 91-92).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

507) Site: Saar. Horvat Saar.

²⁰² Size of MB II settlement. LB size not recorded.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.247113, 35.764381.

Period(s): LB (Dar 1993: 11; IAA site 4071/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

508) Site: Said, Deir Abu.

Ancient name:

Location: Transjordan region. 32.494913, 35.684804.

Period(s): LB II (MEGA 5306).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

509) Site: Saidiyeh, Tell es. Tell Saidiyyeh.

Ancient name: Zaphon/Sapuna? (EA 274; Ramesseum of Ramesses II: 11; Joshua 13:27; Judges 12:1).²⁰³

Location: Transjordan region. 32.267816, 35.577479.

Period(s): LB I, LB II (MEGA 2655).

Site size: 8 hectares (GIS; DAAHL site 353202379).²⁰⁴

Fortification reduction: 10% mound reduction (7.2 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 120

Estimated total residential population: 4,320

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 4,300 (rounded) LB II. 1,000 LB I?

Overall site population density: 538 people per hectare

510) Site: Safa, Tell es.

Ancient name:

Location: Lake Kinnereth region. 33.021839, 35.589716.

Period(s): LB (IAA site 3796/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

²⁰³ Lack of textual attestation from the period of Thutmose III and Amenhotep III may indicate a less dense and lower population in Late Bronze I.

²⁰⁴ Includes lower city area.

Overall site population density:

511) Site: Safit, Khirbet.

Ancient name:

Location: Transjordan region. 32.306522, 35.71439.

Period(s): LB (MEGA 10421).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

512) Site: Safut, Tall.

Ancient name: Kenath/Nobah? (Numbers 32:42; Judges 8:11).

Location: Transjordan region. 32.03441, 35.829505.

Period(s): LB I, LB II (Wimmer 1987: 162-165; MEGA 11320).

Site size: 1.8 hectares (Wimmer 1987: 162-165)

Fortification reduction: 10% mound reduction (1.6 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 26

Estimated total residential population: 936

Palace population:

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 900 (rounded)

Overall site population density: 500 people per hectare

513) Sahem. Saham. (C)

Ancient name:

Location: Transjordan region. 32.698532, 35.776051.

Period(s): LB II (Kafafi 2007: Table 1).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

514) Site: Sakhineh, Tell es.

Ancient name:

Location: Transjordan region. 32.593603, 35.614799.

Period(s): LB (MEGA 4732).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

515) Site: Sakhina, Tell. Tell Qallil.

Ancient name:

Location: Lake Kinnereth region. 33.194257, 35.649794.

Period(s): LB I (IAA site 22836/0, 22837/0, 22838/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

516) Site: Sakhra.

Ancient name:

Location: Transjordan region. 32.366292, 35.847851.

Period(s): LB I, LB II (MEGA 12605).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

517) Site: Sakka, Tell.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.440489,36.46852.

Period(s): LB I, LB II (Al-Maqdissi 1993: 453).

Site size: 1.1 hectares (GIS).

Fortification reduction: 10% mound reduction (1.0 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 576

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 550 (rounded)

Overall site population density: 500 people per hectare

518) Site: Sakut, Tell.

Ancient name:

Location: Cisjordan region. 32.364213, 35.547037.

Period(s): LB (DAAHL site 353203725).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

519) Site: Sal, Tall.

Ancient name:

Location: Transjordan region. 32.567716, 35.911323.

Period(s): LB I, LB II (MEGA 2786).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

520) Site: Salih, Khirbet. Khirbet Saleh.

Ancient name:

Location: Cisjordan region. 32.204986, 35.550677.

Period(s): LB II (IAA site 3637/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

521) Site: Salil, Khirbet.

Ancient name:

Location: Cisjordan region. 32.637622, 35.494999.

Period(s): LB (IAA site 18376/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

522) Site: Salus, Khirbet. Hamid. Arbua.

Ancient name:

Location: Transjordan region. 32.307039, 35.770752.

Period(s): LB I (MEGA 5864).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

523) Site: Samoqa, Khirbet.

Ancient name:

Location: Transjordan region. 32.594394, 35.813095.

Period(s): LB I (MEGA 11579).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

524) Site: Sanam, Tell.

Ancient name:

Location: Mediterranean Coastal region. 31.464219, 34.382091.

Period(s): LB (Goren 2004: 355).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

525) Site: Sarab, Umm es.

Ancient name:

Location: Transjordan region. 31.833032, 35.835598.

Period(s): LB (Ibach 1987: 18).

Site size: 2 hectares? (Ibach 1987: 18).

Fortification reduction: 10% mound reduction (1.8 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

526) Site: Sarafand. Sarepta. Tell Ras el-Qantara. Zarepath.

Ancient name: Zarepath? (UT 321: I, 46; Papyrus Anastasi I 20:8).

Location: Mediterranean Coastal region. 33.45754, 35.29583.

Period(s): LB I, LB II (Anderson 1988: 367-426).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

527) Site: Sarsara, Khirbet.

Ancient name:

Location: Central Canaan region. 32.059446, 35.023753.

Period(s): LB (Finkelstein and Lederman 1997: 239).

Site size: 0.6 hectares (Finkelstein and Lederman 1997: 239).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 10

Estimated total residential population: 241 (0.67 village multiplier x 360).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 200 (rounded)

Overall site population density: 333 people per hectare

528) Site: Sawafir esh Shamaliya. Shafir.

Ancient name:

Location: Mediterranean Coastal region. 31.707577, 34.703819.

Period(s): LB (Goren 2004: 342).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

529) Site: Sawarkiya, Khirbet. Khirbet Sawarika. Horvat Shoraqa.

Ancient name:

Location: Central Canaan region. 31.56221, 34.690874.

Period(s): LB (IAA site 13483/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

530) Site: Sejeret el Mezr.

Ancient name:

Location: Lake Kinnereth region.

Period(s): LB (Liebowitz 2003: Plan 1.2).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

531) Site: Sera, Tel. Tell esh Sharia.

Ancient name: Ziklag? (Joshua 15:31).

Location: Southern Desert region. 31.390645, 34.67774.

Period(s): LB I, LB II (IAA site 27583/0; Goren 2004: 349).

Site size: 2 hectares (DAAHL site 343100265).

Fortification reduction: 10% mound reduction (1.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

532) Site: Shaar Efrayim. (C)

Ancient name:

Location: Central Canaan region. 32.283749, 35.001096.

Period(s): LB (Golan 2008).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

533) Site: Shaal, Nahal.

Ancient name:

Location: Mediterranean Coastal region. 33.044995, 35.110614.

Period(s): LB (IAA site 21595/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

534) Site: Shaalbim, Tel. Salbit.

Ancient name:

Location: Central Canaan region. 31.869326, 34.988472.

Period(s): LB (Shavit 1992: 91-92).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

535) Site: Shabana, Khirbet. Shabaneh.

Ancient name:

Location: Central Canaan region. 32.751766, 35.170689.

Period(s): LB (IAA site 2679/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

536) Site: Shabaniya, esh. Tell Ein el Hariri.

Ancient name:

Location: Lake Kinnereth region. 32.918106, 35.811072.

Period(s): LB (IAA site 4125/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

537) Site: Shaddud, Tell. Tel Shadud. Tell Sarid.

Ancient name: Sarid? (Joshua 19:12).

Location: Central Canaan region. 32.658264, 35.23209.

Period(s): LB (Albright 1925: 9).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

538) Site: Shah, Khirbet esh. Horvat Shaha.

Ancient name:

Location: Central Canaan region. 31.709081, 34.892647.

Period(s): LB (Dagan 1992: 94-95).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

539) Site: Shahaf, Tel. Tell Abalis.

Ancient name:

Location: Lake Kinnereth region. 33.06196, 35.606136.

Period(s): LB (IAA site 3809/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

540) Site: Shahariya.

Ancient name:

Location: Central Canaan region. 31.602797, 34.812814.

Period(s): LB I (IAA site 16684/0).

Site size: 0.9 hectares (DAAHL site 343100112).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 362 (0.67 village multiplier x 540).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 389 people per hectare

541) Site: Shalaleh, Khirbet. Khirbet Shallala.

Ancient name:

Location: Central Canaan region. 32.722833,35.012735.

Period(s): LB (Bunimovitz 1989: 125; Thompson 1979: 119; IAA site 2059/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

542) Site: Shallaf, Tell. Tel Shalaf.

Ancient name:

Location: Central Canaan region. 31.892688, 34.768356.

Period(s): LB (Goren 2004: 343).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

543) Site: Shammam, Tell. Tel Shem.

Ancient name:

Location: Central Canaan region. 32.67043, 35.155583.

Period(s): LB II (IAA site 2582/0; Thompson 1979: 123).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

544) Site: Shamsin, Khirbet. Khirbet Shemesh. Shemsin.

Ancient name:

Location: Central Canaan region. 32.422722, 35.072269.

Period(s): LB (Liebowitz 2003: 2; Thompson 1979: 129).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

545) Site: Shaqeir, Khirbet Abu. Ain Soqer. Khirbet Abu Shukeir.

Ancient name: Sikar? (Kom el-Hetan list of Amenhotep III: CN1 12)

Location: Central Canaan region. 32.575344, 35.055224.

Period(s): LB (IAA site 7289/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

546) Site: Sharta, Khirbet.

Ancient name:

Location: Central Canaan region. 32.810047, 35.126966.

Period(s): LB (Thompson 1979: 105).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

547) Site: Sharuhen, Ain. Nahal Besor.

Ancient name:

Location: Southern Desert region. 31.274993, 34.491855.

Period(s): LB (IAA site 6543/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

548) Site: Shave Ziyon (U).

Ancient name:

Location: Mediterranean Coastal region. 32.98426, 35.077196.

Period(s): LB (IAA site 4400/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

549) Site: Shechem. Tell Balatah.

Ancient name: Shekem (Papyrus Anastasi I 21:6; EA 289; Joshua 21:21)

Location: Cisjordan. 32.213691, 35.282501.

Period(s): LB I, LB II expansion (Campbell 2002: 106-222; Wright 1965; DAAHL site 353201968).

Site size: 4.5 hectares (DAAHL site 353201968; GIS).²⁰⁵

Fortification reduction: None additional.

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population: 20 ?

Garrison population: 100 ?

Temple population: 10 ?

Estimated total maximum site population: 2,800 (rounded) LB II. 1,000 LB I?

Overall site population density: 622 people per hectare

550) Site: Sheik Dhiab, Tell.

Ancient name:

Location: Cisjordan region. 32.046324, 35.429883.

Period(s): LB (Glueck 1951: 404-416).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

²⁰⁵ Possibility of a lower city would increase the overall site size.

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

551) Site: Sheik Hasan, Tell. Old Tel Yosef.

Ancient name:

Location: Central Canaan region. 32.530795, 35.403451.

Period(s): LB I, LB II (Zori 1977: 26-27; DAAHL site 353202511).

Site size: 0.6 hectares (DAAHL site 353202511).

Fortification reduction: 10% mound reduction (0.5 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 8

Estimated total residential population: 288

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 250 (rounded)

Overall site population density: 417 people per hectare

552) Site: Sheik Madkur, Khirbet. Sheik Madkhur.

Ancient name: Adullam? (Joshua 12:15).

Location: Central Canaan region. 31.649780, 35.002490.

Period(s): LB (Dagan 1992: 149-150).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

553) Site: Sheik Mahmoud.

Ancient name:

Location: Lake Kinnereth region. 33.129928, 35.650323.

Period(s): LB (Goren 2004: 348).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

554) Site: Sheik Saad.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 32.833032, 36.032644.

Period(s): LB (Goren 2004: 336).²⁰⁶

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

²⁰⁶ Stele of Ramesses II found at the site.

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

555) Site: Sheik Safiryan, Khirbet.

Ancient name: Bezeq? Shapirin? (Judges 1:4; Rehov Inscription)

Location: Central Canaan region. 32.399825, 35.331805.

Period(s): LB I, LB II (Zertal 2008: 104, 120-121; Zertal 1996: 117-119).

Site size: 2 hectares (Zertal 2008: 120-121).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 796 (0.67 village multiplier x 1188).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 750 (rounded)

Overall site population density: 375 people per hectare

556) Site: Sheik Saleh, Tell esh.

Ancient name:

Location: Cisjordan region. 32.518828, 35.538038.

Period(s): LB (Zori 1962: 142).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

557) Site: Shelabun, Khirbet.

Ancient name:

Location: Central Canaan region. 33.128585, 35.416485.

Period(s): LB (Goren 2004: 347).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

558) Site: Shelavvim, Khirbet.

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 32.532727, 36.471651.

Period(s): LB (Zori 1977: 83).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

559) Site: Sheqef, Tel.

Ancient name:

Location: Central Canaan region. 31.559312, 34.715121.

Period(s): LB (Goren 2004: 349).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

560) Site: Sherif, Tell Abu.

Ancient name:

Location: Beqa Valley region. 33.891994, 36.026633.

Period(s): LB (Marfoe 1995: 235).

Site size: 2.5 hectares

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 41

Estimated total residential population: 1,476

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,450

Overall site population density: 580 people per hectare

561) Site: Shevah, Tell. Tell Subeih.

Ancient name:

Location: Central Canaan region. 32.307742, 34.966622.

Period(s): LB (IAA site 1799/0).

Site size: 0.4 hectares? (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 125 people per hectare

562) Site: Shifat, Khirbet.

Ancient name:

Location: Central Canaan region. 32.833136, 35.276664.

Period(s): LB (Thompson 1979: 106).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

563) Site: Shihab ,Tell. Tal Shehab.

Ancient name: Kiriath-Anab? (Karnak list of Seti I; Seti I Abydos list: A4; Ramesses II Luxor (left) list: 25; Papyrus Anastasi I 22:4; EA 256:26 Heni-Anabi? Joshua 11:21?).

Location: Hauran Plateau and Anti-Lebanon region. 32.689873, 35.968174.

Period(s): LB (Albright 1925: 16-17).²⁰⁷

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

564) Site: Shikmona, Tel. Tell Shiqmona. Tell es Samak.

Ancient name:

Location: Mediterranean Coastal region. 32.824031, 34.958581.

Period(s): LB I, LB II (Goren 2004: 346; IAA site 1744/0; DAAHL site 343200130).

Site size: 1.0 hectares (DAAHL site 343200130).

Fortification reduction: 10% mound reduction (0.9 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 15

²⁰⁷ Stele of Seti I found at this site.

Estimated total residential population: 540

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 500 (rounded)

Overall site population density: 500 people per hectare

565) Site: Shiloh. Tell Shiloh. Khirbet Seilun.

Ancient name: Shiloh (Joshua 18:1).

Location: Cisjordan region. 32.056545, 35.289876.

Period(s): LB I, LB II (Finkelstein et al. 1993: Table 6.1; 129-136; DAAHL site 353202130).

Site size: 0.5 hectares? (DAAHL site 353202130; Finkelstein and Lederman 1997: 653; Finkelstein et al. 1993: Table 6.1; 129-136).²⁰⁸

Fortification reduction: None.²⁰⁹

Site division: 80% residential, 20% other LB I. Shrine LB II.

Total insulae in residential district: 8

Estimated total residential population: 193 (0.67 village multiplier x 288).

Palace population:

Garrison population:

Temple population: Temporary ?

Estimated total maximum site population: 150 (rounded) LB I. 0 (Temporary?) LB II.

Overall site population density: 300 people per hectare

566) Site: Shimron, Tel. Tell Samunia. Khirbet Sammuniya. Zomet Nahalal.

Ancient name: Shamuna/Shamuanu? (Thutmose III Karnak list I: 35. Papyrus Leningrad 1116A vs:71, 188. Kom el-Hetan list of Amenhotep III: CN1 15. EA 225; Joshua 11:1).

²⁰⁸ Perhaps 0.5 hectares in LB I, then even smaller in LB II as primarily a shrine rather than a settlement.

²⁰⁹ The site itself was much larger. Therefore, the density of the LB I settlement would probably have been similar to an unbounded village.

Location: Central Canaan region. 32.703696, 35.211929.

Period(s): LB I, LB II (IAA site 23046/0; Goren 2004: 354; Thompson 1979: 124).

Site size: 25 hectares? (DAAHL site 353202485).²¹⁰

Fortification reduction: 10% mound reduction (22 hectares).

Site division: 85% residential, 15% other

Total insulae in residential district: 392

Estimated total residential population: 14,112

Palace population: 20 ?

Garrison population: 200 ?

Temple population: 10 ?

Estimated total maximum site population: 14,300 (rounded).²¹¹

Overall site population density: 572 people per hectare

567) Site: Shiqma, Nahal.

Ancient name:

Location: Central Canaan region. 31.526422, 34.743827.

Period(s): LB (IAA site 13510/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

²¹⁰ MB size estimate. LB size not given, but the site was also occupied in the LB according to textual attestation. Surveys also indicate that a lower city existed.

²¹¹ It is possible that the LB settlement was smaller, but unfortunately archaeological investigations at the site have not illuminated this. However, the frequent and prominent attestation in Late Bronze Age texts suggests that the site was occupied throughout the Late Bronze Age and was one of the more important settlements in the region.

568) Site: Shokh, Tell. Tel Sokho. Khirbet Abbad.

Ancient name: Soko/Sokoh? (Thutmose III Karnak list I: 67; Amenhotep II Memphis annals Urk IV 1306:2; Soleb list of Amenhotep III: 7B3; Split list of Seti I: A19; Amara West list of Ramesses II: 70, 91; Joshua 15:35).

Location: Cisjordan region. 32.497293, 35.45849.

Period(s): LB I, LB II (Goren 2004: 344; Dagan 1992: 134; LB IAA site 1859/0; DAAHL site 353202393).

Site size: 1.9 hectares (DAAHL site 353202393).

Fortification reduction: 10% mound reduction (1.7 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 28

Estimated total residential population: 1,008

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,000 (rounded)

Overall site population density: 526 people per hectare

569) Site: Shoqeq, Tel. Tell Shemdin. Shamdin. Tel Shamat.

Ancient name:

Location: Cisjordan region. 32.496732, 35.462106.

Period(s): LB (IAA site 3736/0).

Site size: 0.3 hectares? (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

570) Site: Shreim, Khirbet.

Ancient name:

Location: Central Canaan region. 32.280306, 35.208097.

Period(s): LB (Goren 2004: 353).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

571) Site: Shubek, Khirbet ash.

Ancient name:

Location: Central Canaan region. 33.015649, 35.172271.

Period(s): LB (Thompson 1979: 80).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

572) Site: Shubeil, Wadi.

Ancient name:

Location: Transjordan region. 32.143591, 35.840668.

Period(s): LB (MEGA 11359).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

573) Site: Shumshiya, Khirbet. Horvat Shimshit.

Ancient name:

Location: Central Canaan region. 32.742246, 35.244257.

Period(s): LB (IAA site 27888/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

574) Site: Shuneh, Tell esh. Shunah esh Shemali.

Ancient name:

Location: Transjordan region. 32.6113, 35.6098.

Period(s): LB I, LB II (MEGA 9699).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

575) Site: Shuni, Enot (Quarry).

Ancient name:

Location: Mediterranean Coastal region. 32.533916, 34.941983.

Period(s): LB (IAA site 29881/0; Pielstocker and Sklar-Parnes 2005)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

576) Site: Shuqayif. Mashrafawi.

Ancient name:

Location: Lake Kinnereth region. 32.855977, 35.675277.

Period(s): LB (IAA site 3909/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

577) Site: Shuqqaq, Khirbet. Horvat Yoah.

Ancient name:

Location: Central Canaan region. 32.623021, 35.059002.

Period(s): LB (IAA site 2240/0).

Site size: 0.9 hectares (DAAHL site 353202159).²¹²

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 362 (0.67 village multiplier x 540)

Palace population:

²¹² MB III site size. LB site size not given.

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 389 people per hectare

578) Site: Shurrab, Khirbet.

Ancient name:

Location: Cisjordan region. 32.165995, 35.302235.

Period(s): LB (Campbell 1991: 53).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

579) Site: Shush, Tel. Abu Shusheh. Abu Shusha.

Ancient name: Geba? (Thutmose III Karnak list I: 114; Joshua 18:24).

Location: Central Canaan region. 32.615954, 35.139597.

Period(s): LB (IAA site 2538/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

580) Site: Shuweikat er Ras, Khirbet. Shweikat er Ras.

Ancient name:

Location: Central Canaan region. 32.342026, 35.032287.

Period(s): LB I, LB II (Zertal and Mirkam 2000: 407-408).

Site size: 3 hectares? (DAAHL site 353202193).²¹³

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

581) Site: Sibya.

Ancient name:

Location: Transjordan region. 32.52828, 35.688635.

Period(s): LB II (MEGA 10581).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

²¹³ MB III site size. LB size not given.

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

582) Site: Sidon.

Ancient name: Sidon/Siduna (Papyrus Anastasi I 28:8; Ugaritic KTU 1.14, Krt: 199; EA 118, EA 148, EA 152, EA 154, EA 162 etc.; Joshua 11:8; Judges 1:31).

Location: Mediterranean Coastal region. 33.560672, 35.370562.

Period(s): LB (Doumet-Serhal 2000: 114-117; Doumet-Serhal 2001: 171; Doumet-Serhal 2002: 196-201).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 5,000?²¹⁴

Overall site population density:

583) Site: Sidon Dakerman. (C)

Ancient name:

Location: Mediterranean Coastal region. 33.555236, 35.365115.

Period(s): LB (Genz and Sader 2008: 275; Saidah 2004).

Site size: hectares

Fortification reduction:

²¹⁴ Estimate based on textual prominence in the Late Bronze Age and comparison to Byblos.

Site division: 80% residential, 20% other

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population:

Overall site population density:

584) Site: Sirhan, Tell.

Ancient name:

Location:

Period(s): LB (Marfoe 1995: 226-227).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

585) Site: Sirtassa.

Ancient name:

Location: Central Canaan region. 32.308671, 35.176966.

Period(s): LB II (Goren 2004: 353).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

586) Site: Sitt Leila, Tell. Tel Sefi. Tel Zefi.

Ancient name:

Location: Central Canaan region. 32.533459, 35.001539.

Period(s): LB (Covo 1991: 106).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

587) Site: Slavim, Tel. Tell el Firr.

Ancient name:

Location: Central Canaan region. 32.539379, 35.40741.

Period(s): LB (Zori 1977: 83).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

588) Site: Som.

Ancient name:

Location: Transjordan region. 32.590227, 35.795753.

Period(s): LB II (MEGA 2887).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

589) Site: Sora, Tel. Sarah.

Ancient name:

Location: Transjordan region. 31.9450, 35.8285.

Period(s): LB (MEGA 11304).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

590) Site: Soreg, Tel. Nahal Ain Gev. Tell Sarj.

Ancient name:

Location: Lake Kinnereth region. 32.774440,35.684145.

Period(s): LB (IAA site 3931/0; DAAHL site 353203371).

Site size: 0.4 hectares (Kochavi 1993: 1410).

Fortification reduction: None

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

591) Site: Sreq. Shureq.

Ancient name:

Location: Transjordan region. 32.543146, 35.644599.

Period(s): LB I (MEGA 2873).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

592) Site: Subat, Tell. Tel Zavat.

Ancient name:

Location: Mediterranean Coastal region. 32.814073, 35.086386.

Period(s): LB (Bunimovitz 1989: 123; Thompson 1979: 103).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

593) Site: Subeireh (North).

Ancient name:

Location: Transjordan region. 32.3004, 35.5731.

Period(s): LB (MEGA 9540).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

594) Site: Suf.

Ancient name:

Location: Transjordan region. 32.312978, 35.837684.

Period(s): LB I (MEGA 5858).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

595) Site: Sufan, Tell. Tell es Sufari. Tel Sofar.

Ancient name:

Location: Cisjordan region. 32.228964, 35.244151.

Period(s): LB (Campbell 1991: 77-83).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

596) Site: Sugha, Tell.

Ancient name:

Location: Beqa Valley region. 34.221433, 36.332725.

Period(s): LB (Marfoe 1995: 270-71).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

597) Site: Sulem. Shulam. Shunem.

Ancient name: Shunem? (Thutmose III Karnak list I: 38; EA 250, EA 365; Joshua 19:18).

Location: Central Canaan region. 32.606786, 35.334959.

Period(s): LB (IAA site 3169/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

598) Site: Sumeiriya, Tel. Givat Yesef.

Ancient name:

Location: Mediterranean Coastal region. 32.961052, 35.092608.

Period(s): LB (Thompson 1979: 79; Yogeve and Rochman 1986: 104).

Site size: 6.5 hectares (Yogeve and Rochman 1986: 103).

Fortification reduction: 10% mound reduction (5.8 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 97

Estimated total residential population: 3,492

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,500 (rounded)

Overall site population density: 538 people per hectare

599) Site: Sus, Tell Abu.

Ancient name:

Location: Cisjordan region. 32.373123, 35.561019.

Period(s): LB II (de Contenson 1964: 42).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

600) Site: Suweqira, Khirbet. Khirbet Sugar.

Ancient name:

Location: Central Canaan region. 33.03333, 35.16658.

Period(s): LB (Thompson 1979: 73).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

601) Site: Taanakh. Tel Taanach. Tell Tiinik.

Ancient name: Tanaakh (Thutmose I Karnak list I: 42; Thutmose III annals Urk IV 650:10, 653:11; Papyrus Leningrad 1116A vs: 72, 189; EA 248. Tanaakh letters; Joshua 17:11; Judges 1:27).

Location: Central Canaan region. 32.52079, 35.219666.

Period(s): LB I, LB II (Lapp 1964: 8, 15, 20-21; Lapp 1967: 15, 21; Lapp 1969: 16-22, 27, 33).²¹⁵

Site size: 5 hectares LB I, 2 hectares LB II (DAAHL site 353202495).²¹⁶

Fortification reduction: 10% mound reduction (4.5 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 75

Estimated total residential population: 2,700

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,700 (rounded) LB I. 1,050 (rounded) LB II.

Overall site population density: 540 people per hectare.

602) Site: Tabaq. Ain al Tapaqa.

Ancient name:

Location: Transjordan region. 32.6461, 35.6314.

Period(s): LB (MEGA 2777).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

²¹⁵ According to Lapp, occupation in the Late Bronze Age ceased after LB IIA.

²¹⁶ Reduced to 2 hectares in LB II.

603) Site: Tabgha, Tahunat el.

Ancient name:

Location: Lake Kinnereth region. 33.218209, 35.641497.

Period(s): LB (Goren 2004: 348)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

604) Site: Tahuneh, Tall. Tall Tahun.

Ancient name:

Location: Transjordan region. 31.845738, 35.6737.

Period(s): LB I (MEGA 2747).

Site size: 0.7 hectares (GIS).

Fortification reduction: None additional. Measured top of mound.

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 396

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 500 people per hectare

605) Site: Talbaya, Tell. Tell Taalbaya.

Ancient name:

Location: Beqa Valley region. 33.811548, 35.876057.

Period(s): LB I, LB II (Marfoe 1995: 227).

Site size: 1.2 hectares (Marfoe 1998: 165).

Fortification reduction: 10% mound reduction (1.1 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 648

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 500 people per hectare

606) Site: Taleh, Nahal.

Ancient name:

Location: Southern Desert region. 31.166667, 35.016667.

Period(s): LB (IAA site 32642/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

607) Site: Tamnun Island. Newe Yam. (U).

Ancient name:

Location: Mediterranean Coastal region. 32.678224, 34.926555.

Period(s): LB (IAA site 1522/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

608) Site: Tamra.

Ancient name:

Location: Central Canaan region. 32.85102, 35.204076.

Period(s): LB (Lehmann and Peilstocker 2012: 71).

Site size: 2 hectares? (Lehmann and Peilstocker 2012: 71).²¹⁷

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 796 (0.67 village multiplier x 1,188).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 750 (rounded)

²¹⁷ 4.5 hectare sherd spread, but possibly due to agricultural work and construction. Site will be treated as a 2 hectare village, acknowledging the possibility of a much larger site.

Overall site population density: 375 people per hectare

609) Site: Tana el Foqa, Khirbet.

Ancient name:

Location: Cisjordan region. 32.176112, 35.370353.

Period(s): LB (Campbell 1991: 36).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

610) Site: Tana et Tahta, Khirbet.

Ancient name:

Location: Cisjordan region. 32.152553, 35.394385.

Period(s): LB (Campbell 1991: 37).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

611) Site: Tananir.

Ancient name:

Location: Cisjordan region. 32.20875, 35.282657.

Period(s): LB (Campbell 1991: 20).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

612) Site: Tanayil, Tell.

Ancient name:

Location: Beqa Valley region. 33.798148, 35.867149.

Period(s): LB I, LB II (Marfoe 1995: 222-223; DAAHL site 353301093).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

613) Site: Tarsi, Horvat. Khirbet el Rujm.

Ancient name:

Location: Central Canaan region. 31.929759, 34.989515.

Period(s): LB (Shavit 1992: 87-88).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

614) Site: Teitaba.

Ancient name:

Location: Central Canaan region. 33.016868, 35.481879.

Period(s): LB I, LB II (Frankel 1994: 25).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

615) Site: Tel Aviv.

Ancient name:

Location: Mediterranean Coastal region. 32.068338, 34.784192.

Period(s): LB (IAA site 25934/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

616) Site: Teomim, Tell. Tell Thum. Tel Teomin.

Ancient name:

Location: Cisjordan region. 32.4422, 35.494497.

Period(s): LB (IAA site 27722/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

617) Site: Thora, Tell. Tel Shor.

Ancient name:

Location: Central Canaan region. 32.654353, 35.168949.

Period(s): LB (IAA site 2675/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

618) Site: Thuraya, Tell eth. Arqayib et Tinya. Mispor Negev Kinrot.

Ancient name:

Location: Lake Kinnereth region. 32.697191, 35.64535.

Period(s): LB (IAA site 3851/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

619) Site: Timmorim.

Ancient name:

Location: Central Canaan region. 31.728304, 34.762189.

Period(s): LB (Goren 2004: 345).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

620) Site: Tina, Khirbet.

Ancient name:

Location: Central Canaan region. 31.746699, 34.819416.

Period(s): LB (IAA site 6364/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

621) Site: Tira, Khirbet. Tirat Tamra.

Ancient name:

Location: Central Canaan region. 32.853053, 35.169666.

Period(s): LB (Thompson 1979: 91; IAA site 2683/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

622) Site: Tirat Shalom (South).

Ancient name:

Location: Central Canaan region. 31.907627, 34.783958.

Period(s): LB (IAA site 37550/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

623) Site: Trumot, Tel. Khirbet Humra. Dharat el Humraiya. (C)

Ancient name:

Location: Mediterranean Coastal region. 31.933977, 34.745093.

Period(s): LB I, LB II (Dothan 1952: 106; IAA site 34459/0).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

624) Site: Tubas.

Ancient name:

Location: Cisjordan region. 32.322199, 35.369312.

Period(s): LB (Campbell 1991).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

625) Site: Tuleilat Shawaqa.

Ancient name:

Location: Hauran and Anti-Lebanon region. 33.430573, 36.200497.

Period(s): LB (Al-Maqdissi 1993: 478-479).

Site size: 2 hectares (Al-Maqdissi 1993: 478-479).

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 33

Estimated total residential population: 1,188

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,150 (rounded)

Overall site population density: 575 people per hectare

626) Site: Tyre.

Ancient name: Tyre (Soleb list of Amenhotep III: 10B2; El-Qurne lists of Seti I: 21; Luxor list of Ramesses II (right): 14; Papyrus Anastasi I 21:1; Papyrus Anastasi III vs 6:3; EA 149, EA 155; Joshua 19:29).

Location: Mediterranean Coastal region. 33.268475, 35.210835.

Period(s): LB I, LB II (Bikai 1978: 6-8, 17-63).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 5,000?²¹⁸

Overall site population density:

627) Site: Ubeidiyeh, Tell. Tell el Abeidiyeh. Tel Ovadya.

Ancient name: Yanoam/Yenoam? (Thutmose III annals Urk IV 665:1, Urk IV 185:17, Urk IV 744:5; Kom el-Hetan list of Amenhotep III: BNr 2; Seti I Karnak relief KRI I 13:4; Seti I larger Beth-Shean stele KRI I 12:13; Seti I Karnak list: 52; Seti I Abydos list: A1; Luxor list Ramesses II: (right) 11, (left) 30; Merneptah Stele KRI IV 19:5-6; EA 197 (Yanuamma); Joshua 16:6?).

Location: Lake Kinnereth region. 32.688916, 35.561712.

Period(s): LB (Liebowitz 2003: 2; IAA site 3705/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

628) Site: Ukkal, Horvat.

Ancient name:

Location: Cisjordan region. 32.641137, 35.505129.

Period(s): LB (IAA site 27790/0).

Site size: hectares

Fortification reduction:

²¹⁸ Based on textual prominence and comparisons with Byblos.

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

629) Site: Umeiri, Tell el. Tell Umeyri. Tall Umayri.

Ancient name: Heshbon? (Joshua 12:2).

Location: Transjordan region. 31.868683, 35.888588.

Period(s): LB I, LB II (Van der Steen 2004: 12; MEGA 2677).

Site size: 6.5 hectares LB I? (Ibach 1987: 31; cf. Clark and Herr 2004: 6-67).1.8
hectares LB II (Clark 2011: 43).

Fortification reduction: 10% mound reduction (5.8 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 97

Estimated total residential population: 3,492

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,500 (rounded) LB I. 950 (rounded) LB II.

Overall site population density: 538 people per hectare

630) Site: Umm ed Dananir, Khirbet.

Ancient name:

Location: Transjordan region. 32.085811, 35.816275.

Period(s): LB I, LB II (Van der Steen 2004: 59-60; MEGA 11326; DAAHL site
353201806).

Site size: 2.5 hectares (Brown and McGovern 1986: 9).

Fortification reduction: None.

Site division: 80% residential, 20% other

Total insulae in residential district: 41

Estimated total residential population: 1,476

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 1,450 (rounded)

Overall site population density: 580 people per hectare

631) Site: Umm el Baqar, Khirbet.

Ancient name:

Location: Central Canaan region. 31.529989,34.790637.

Period(s): LB (Dagan 1992: 118; IAA site 26469/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

632) Site: Umm Hamad esh Sharqi. Umm Hamad el Sharqi.

Ancient name:

Location: Transjordan region. 32.151744, 35.594112.

Period(s): LB II (Van der Steen 2004: 228).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

633) Site: Urma, Khirbet. Khirbet el Urmah. Khirbet el Urme.

Ancient name: Arumah? (Judges 9:41).

Location: Cisjordan region. 32.147448, 35.321451.

Period(s): LB (Finkelstein and Lederman 1997: 805; Campbell 1991; Finkelstein 1988: 149).

Site size: 1.5 hectares (Finkelstein and Lederman 1997: 805; Finkelstein 1988: 149).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 603 (0.67 village multiplier x 900)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 400 people per hectare

634) Site: Urema, Tall al. Holata.

Ancient name:

Location: Lake Kinnereth region. 33.052416, 35.609627.

Period(s): LB (Thompson 1979: 77).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

635) Site: Ushayir, Tall al. Tall Ashiar.

Ancient name:

Location: Transjordan region. 32.558714, 35.800933.

Period(s): LB (Kafafi 2007: 394).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

636) Site: Usu. (T)

Ancient name: Usu (Papyrus Anastasi I 21:1; El-Qurne (southern sphinx) Seti I: 22; Luxor list Ramesses II (right): 15; EA 148, EA 149, EA 150).

Location: Mediterrean Coastal region. South of Tyre.

Period(s): LB (Textual attestation)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

637) Site: Wadi Arab Survey Site 046.

Ancient name:

Location: Transjordan region. 32.640789, 35.743084.

Period(s): LB (MEGA 11511).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

638) Site: Wadi Ziqlab Survey Site 091

Ancient name:

Location: Transjordan region. 32.471591,35.715124.

Period(s): LB (MEGA 10469).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

639) Site: Wadi Ziqlab Survey Site 037

Ancient name:

Location: Transjordan region. 32.529881, 35.629476.

Period(s): LB (MEGA 9676).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

640) Site: Wadi Ziqlab Survey Site 034.

Ancient name:

Location: Transjordan region. 32.523088, 35.656909.

Period(s): LB (MEGA 5287).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

641) Site: Wadi Ziqlab Survey Site 033

Ancient name:

Location: Transjordan region. 32.524732, 35.659183.

Period(s): LB (MEGA 10552).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

642) Site: Wadi Ziqlab Survey Site 030.

Ancient name:

Location: Transjordan region. 32.528081, 35.679912.

Period(s): LB (MEGA 5285).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

643) Site: Wadi Ziqlab Survey Site 018.

Ancient name:

Location: Transjordan region. 32.528362, 35.702645.

Period(s): LB (MEGA 10545).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

644) Site: Wawiyat, Tell el. Tel Vavit.

Ancient name:

Location: Central Canaan region. 32.798672, 35.304844.

Period(s): LB I, LB II (Avshalom-Gorni and Getzov 2001: 1; Gal 1992: 25; Dessel 1999: 12-15; DAAHL site 353202621).

Site size: 0.8 hectares (Avshalom-Gorni and Getzov 2001: 1; Dessel 1999: 12-15).

Fortification reduction: 10% mound reduction (0.7 hectares)

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 396

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 438 people per hectare

645) Site: Yaaf, Tel. Tall al Qasab.

Ancient name:

Location: Lake Kinnereth region. 32.972164, 35.558964.

Period(s): LB (Thompson 1979: 86).

Site size: 1.3 hectares (Thompson 1979: 86).

Fortification reduction: 10% mound reduction (1.1 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 18

Estimated total residential population: 648

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 600 (rounded)

Overall site population density: 461 people per hectare

646) Site: Yaamun.

Ancient name:

Location: Transjordan region. 32.396514, 35.911966.

Period(s): LB I, LB II (Kafafi 2007: Table 1; MEGA 2823; DAAHL site 353201881)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

647) Site: Yad Binyamin.

Ancient name:

Location: Central Canaan region. 31.803550,34.812073.

Period(s): LB (Goren 2004: 345).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

648) Site: Yad Rambam.

Ancient name:

Location: Central Canaan region. 31.905683, 34.894100.

Period(s): LB (IAA site 6762/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

649) Site: Yafia. Yafa.

Ancient name:

Location: Central Canaan region. 32.686952, 35.275045.

Period(s): LB (IAA site 22978/0, 22980/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

650) Site: Yafit 7. Yafit (North).

Ancient name:

Location: Cisjordan region. 32.072366, 35.474547.

Period(s): LB (IAA site 8038/0; DAAHL site 353204740).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

651) Site: Yafo. Tel Yaffo. Yaffa el Atiqā. Jaffa.

Ancient name: Yafo (Thutmose III Karnak list I: 62; Luxor list of Amenhotep II: A13; Split list of Seti I: A41; Amara West list of Ramesses II: 71; Papyrus Harris 500 vs 1:8; Papyrus Anastasi I 25:2; Yapu of EA 294, EA 296, EA 365; Aphek Ugaritic letter; Joshua 19:46).

Location: Mediterranean Coastal region. 32.053881, 34.752812.

Period(s): LB I, LB II (Peilstocker and Burke 2011: Table 2.2, Table 2.4, Table 2.5; Kaplan 1972: 78-82; IAA site 25945/0).²¹⁹

Site size: 10 hectares? (GIS).²²⁰

Fortification reduction: 10% mound reduction (9 hectares).

Site division: 75% residential, 25% other²²¹

Total insulae in residential district: 141

Estimated total residential population: 5,076

²¹⁹ The settlement also included Yafo Harbor (Underwater site), LB IAA site 26148/0).

²²⁰ The site covers approximately 9 hectares according to the current excavators (<http://www.nelc.ucla.edu/jaffa/site.html>), but an estimated 10 or more with the addition of the underwater site, and the possibility of additional settlement covered by modern building.

²²¹ An additional 10% of the city space has been designated for the port of the city.

Palace population: 20 ?

Garrison population: 200 ?

Temple population: 5 ?

Estimated total maximum site population: 5,300 (rounded)

Overall site population density: 530 people per hectare

652) Site: Yalu, Khirbet. Tell Qiq.

Ancient name: Ayyaluna/Aijalon? (EA 287, EA 273; Joshua 21:24; Judges 1:35).

Location: Central Canaan region. 31.839595, 35.023457.

Period(s): LB I, LB II (Kochavi 1972: 236).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

653) Site: Yanin, Khirbet. Khirbet Naïel.

Ancient name:

Location: Central Canaan region. 32.893642, 35.221919.

Period(s): LB (Thompson 1979: 91).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

654) Site: Yannun, Khirbet. Khirbet Yanun.

Ancient name:

Location: Central Canaan region. 32.502786, 35.238008.

Period(s): LB I (Zertal and Mirkam 2000: 163-165).

Site size: 0.7 hectares (DAAHL site 353202501).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 11

Estimated total residential population: 265 (0.67 village multiplier x 396).

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 250 (rounded)

Overall site population density: 357 people per hectare

655) Site: Yanouh, Tell. Khirbet Yanouh.

Ancient name:

Location: Central Canaan region. 33.409784, 35.452665.

Period(s): LB (Gatier et al. 2002: 238).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

656) Site: Yarabiya. Nahal Yahudiya.

Ancient name:

Location: Lake Kinnereth region. 32.92722, 35.688182.

Period(s): LB (IAA site 3938/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

657) Site: Yarmuk, Khirbet. Tel Yarmut.

Ancient name: Jarmuth? (Seti I lesser Beth Shean stele KRI I 16:8; Joshua 21:29).

Location: Central Canaan region. 31.708504, 34.975066.

Period(s): LB II (de Miroschedji 1988: 88; IAA site 1773/0; DAAHL site 343100128).

Site size: 1.8 hectares (DAAHL site 343100128).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 724 (0.67 village multiplier x 1,080)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 700 (rounded)

Overall site population density: 389 people per hectare

658) Site: Yarmut, Nahal.

Ancient name:

Location: Central Canaan region. 31.712543, 34.990949.

Period(s): LB (IAA site 14824/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

659) Site: Yavne Yam. Tel Yavne.²²²

Ancient name: Yavneel? (Joshua 15:11).

Location: Mediterranean Coastal region. 31.923068, 34.693138.

Period(s): LB I, LB II (Segal 2011; Kletter 2004; Goren 2004: 343; IAA site 4423/0; DAAHL site 343100285).

Site size: 17 hectares (DAAHL site 343100285).²²³

Fortification reduction: 10% mound reduction (15.3 hectares)

²²² Part of the site, probably the harbor, is underwater (IAA site 4423/0).

²²³ The MB III site is believed to be approximately 65 hectares. Excavations and surveys apparently indicate that the LB settlement was substantially smaller at 17 hectares.

Site division: 85% residential, 15% other
 Total insulae in residential district: 272
 Estimated total residential population: 9,792
 Palace population: 20 ?
 Garrison population: 200 ?
 Temple population: 10 ?
 Estimated total maximum site population: 10,000 (rounded)
 Overall site population density: 588 people per hectare

660) Site: Yavneh Dunes.

Ancient name:
 Location: Mediterranean Coastal region. 31.899770, 34.731324.
 Period(s): LB (Goren 2004: 343).
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

661) Site: Yehoshua, Kfar.

Ancient name:
 Location: Central Canaan region. 32.674747, 35.17482.
 Period(s): LB (Goren 2004: 354).
 Site size: hectares
 Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

662) Site: Yemma, Khirbet.

Ancient name: Yaham? (Thutmose III Karnak list I: 68; Thutmose III annals Urk IV 649:3; Amenhotep II Memphis annals Urk IV 1305:17; Amenhotep II Karnak annals Urk IV 1314:17)

Location: Central Canaan region. 32.366753, 35.029598.

Period(s): LB (Liebowitz 2003: 2).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

663) Site: Yered, Ain. Ain Vered.

Ancient name:

Location: Central Canaan region. 32.2655, 34.933397.

Period(s): LB (IAA site 1500/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

664) Site: Yifar, Tel. Tell el Far.

Ancient name:

Location: Central Canaan region. 32.634243, 35.285851.

Period(s): LB (IAA site 27823/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

665) Site: Yinam, Tel. Tell Naam.

Ancient name: Unknown

Location: Lake Kinnereth Region. 32.712763, 35.512092.

Period(s): LB II (Liebowitz 2003: 3, 8; Thompson 1979: 128; DAAHL site 353202627).

Site size: 1.7 hectares (Thompson 1979: 128; DAAHL site 353202627).²²⁴

Fortification reduction: 10% mound reduction (1.5 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 25

Estimated total residential population: 900

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 900

Overall site population density: 529 people per hectare

666) Site: Yiqrat. Iqrit. Yokrat.

Ancient name: Aqar/Aqir? (Thutmose III Karnak List I: 88; Soleb list of Amenhotep III: 11B2)

Location: Central Canaan region. 33.07519, 35.275349.

Period(s): LB (Thompson 1979: 73).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

²²⁴ Much of the mound has been destroyed in modern times.

667) Site: Yoqneam. Tell Qeimun. Tel Yoqneam. Jokneam.

Ancient name: Yoqneam/Jokneam (Thutmose III Karnak list I: 113; Joshua 12:22).

Location: Central Canaan region. 32.654823, 35.108795.

Period(s): LB I, LB II (Thompson 1979: 123; IAA site 23058/0; DAAHL site 353202510).²²⁵

Site size: 4.5 hectares (DAAHL site 353202510).

Fortification reduction: 10% mound reduction (4 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 67

Estimated total residential population: 2,412

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 2,400 (rounded)

Overall site population density: 533 people per hectare

668) Site: Yuba, Kufr.

Ancient name:

Location: Transjordan region. 32.537045, 35.805343.

Period(s): LB II (MEGA 11498).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

²²⁵ Also Spring of Yoqneam IAA site 25930/0.

Overall site population density:

669) Site: Yubla.

Ancient name:

Location: Central Canaan region. 32.613808, 35.394557.

Period(s): LB (Zori 1977: 57-59).

Site size: 0.2 hectares (DAAHL site 353202628).²²⁶

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 75 people per hectare

670) Site: Yusef, Khirbet. Khirbet Umm el Hosr.

Ancient name:

Location: Cisjordan region. 32.284198, 35.472594.

Period(s): LB II (Zertal 2007: 343-346; Zertal 1996: 317-319).

Site size: 6 hectares (Zertal 2007: 343-346; Zertal 1996: 317-319).

Fortification reduction: None²²⁷

Site division: 80% residential, 20% other

Total insulae in residential district: 100

Estimated total residential population: 2,412 (0.67 village multiplier x 3600).

Palace population:

²²⁶ Estimated MB III site size. The LB site size is not given, but it was likely near the same size and thus also falls into the Farmstead classification.

²²⁷ Although large, the site will be treated as an unbounded village due to the apparent lack large fortifications and settlement on a plain rather than a mound.

Garrison population:

Temple population:

Estimated total maximum site population: 2,400 (rounded)

Overall site population density: 400 people per hectare

671) Site: Zahra, Tell. Tel Zahara. Ain Izhar.

Ancient name:

Location: Cisjordan region. 32.512729, 35.454247.

Period(s): LB (IAA site 25982/0).

Site size: 2 hectares? (Thompson 1979: 93).

Fortification reduction: 10% mound reduction (1.8 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 30

Estimated total residential population: 1,080

Palace population: 0

Garrison population: 0

Temple population: 0

Estimated total maximum site population: 1,050 (rounded)

Overall site population density: 525 people per hectare

672) Site: Zakari, Tall.

Ancient name:

Location: Transjordan region. 32.162598, 35.602922.

Period(s): LB II (Van der Steen 2004: 227).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

673) Site: Zan, Tell. Tell Zanbaqiya Gharbi. Tell Shauk. Tel Shoshan.

Ancient name:

Location: Cisjordan region. 32.607789, 35.559771.

Period(s): LB I, LB II (IAA site 3701/0, IAA site 27749/0).

Site size: 0.4 hectares? (GIS; DAAHL site 353202411).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 125 people per hectare

674) Site: Zanoah, Tel. Khirbet Zanu. (C)

Ancient name:

Location: Central Canaan region. 31.725822, 34.998094.

Period(s): LB (Dagan 1993: 95; IAA site 1972/0).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

675) Site: Zara, Tall. Tall Ziraa. Tell Zerah.

Ancient name:

Location: Transjordan region. 32.620649, 35.656234.

Period(s): LB I, LB II (Dijkstra et al. 2005: 179, 182).

Site size: 6 hectares (GIS; MEGA 10613).

Fortification reduction: 10% mound reduction (5.4 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 90

Estimated total residential population: 3,240

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 3,250 (rounded)

Overall site population density: 542 people per hectare

676) Site: Zarad, Tell Abu.

Ancient name: Tappuah? (Joshua 12:17).

Location: Cisjordan region. 32.10453, 35.2306.

Period(s): LB (Finkelstein and Lederman 1997: 606; DAAHL site 353204607).

Site size: 2.8 hectares (Finkelstein and Lederman 1997: 606).²²⁸

Fortification reduction: 10% mound reduction (2.5 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 41

Estimated total residential population: 1,476

²²⁸ Size of MB site. It is possible that the LB site was smaller, but data establishing this is currently unavailable.

Palace population: 20 ?

Garrison population:

Temple population: 5 ?

Estimated total maximum site population: 1,500 (rounded)

Overall site population density: 536 people per hectare

677) Site: Zarom, Horvat.

Ancient name:

Location: Cisjordan region. 32.455523, 35.565506.

Period(s): LB (IAA site 3725/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

678) Site: Zawata.

Ancient name:

Location: Cisjordan region. 32.245338, 35.226082.

Period(s): LB I, LB II (Eisenstadt et al. 2004: 77-83).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

679) Site: Zayit, Tel. Tell Zeitah.

Ancient name:

Location: Central Canaan region. 31.629213, 34.830605.

Period(s): LB II (Tappy 2000: 33; Dagan 1992: 153).²²⁹

Site size: 0.3 hectares (Tappy 2000: 7-8, 17-18).²³⁰

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

680) Site: Zeevim, Tel. Khirbet Umm edh Dhiyab. el Medhiab.

Ancient name:

Location: Central Canaan region. 32.451349, 35.045409.

Period(s): LB (IAA site 4324/0).

Site size: hectares

Fortification reduction:

Site division: N/A

²²⁹ There is a possibility that the site was occupied during LB I, but this has not been definitively confirmed.

²³⁰ The occupied portion of the mound itself only covers 0.3 hectares. However, if the lower city area was in use during the Late Bronze Age, the site would have been substantially larger—possibly up to approximately 6 hectares.

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

681) Site: Zefat. Safed. (C)

Ancient name:

Location: Central Canaan region. 32.96168, 35.49888.

Period(s): LB II (Shalev 2004: 33).

Site size: hectares

Fortification reduction:

Site division: Cemetery

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 0

Overall site population density:

682) Site: Zeita.

Ancient name:

Location: Central Canaan region. 32.389310, 35.039119.

Period(s): LB (Goren 2004: 346).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

683) Site: Zeitoun, Tell ez.

Ancient name:

Location: Beqa Valley region. 33.468126, 35.747749.

Period(s): LB (Marfoe 1995: 188).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

684) Site: Zeitun, Tell Abu. Tel Zeton. Bene Beraq.

Ancient name: Mashkat Sanira? (Karnak list of Ramesses II (left hypostyle): 26;
Copied on Medinet Habu Ramesses III list)

Location: Mediterranean Coastal region. 32.099563, 34.836969.

Period(s): LB (Peilstocker and Burke 2011: Figure 7.1; IAA site 25364/0).

Site size: 0.3 hectares? (GIS).

Fortification reduction:

Site division: Outpost

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population: 50

Temple population:

Estimated total maximum site population: 50

Overall site population density: 167 people per hectare

685) Site: Zemed, Tel. Tell Sheikh es Simad.

Ancient name:

Location: Cisjordan region. 32.477311, 35.524011.

Period(s): LB (Zori 1962: 172).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

686) Site: Zeror, Tel. Tell Dhurer.

Ancient name: Seror/Serer? (Thutmose III Karnak list I: 115; Joshua 15:33?)

Location: Central Canaan region. 32.428043, 34.971761.

Period(s): LB I, LB II (Goren 2004: 345; DAAHL site 343200127).

Site size: 4 hectares (DAAHL site 343200127).

Fortification reduction: 10% mound reduction (3.6 hectares).

Site division: 80% residential, 20% other
 Total insulae in residential district: 60
 Estimated total residential population: 2,160
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: 2,150 (rounded)
 Overall site population density: 538 people per hectare

687) Site: Zibda, Tall. Tel Zivda.

Ancient name:
 Location: Mediterranean Coastal region. 32.827606, 35.094912.
 Period(s): LB (Thompson 1979: 102).
 Site size: hectares
 Fortification reduction:
 Site division: N/A
 Total insulae in residential district:
 Estimated total residential population:
 Palace population:
 Garrison population:
 Temple population:
 Estimated total maximum site population: Unknown
 Overall site population density:

688) Site: Zippor, Tel. Tell Tuyur.

Ancient name:
 Location: Central Canaan region. 31.654176, 34.7343.
 Period(s): LB II (IAA site 752/0; DAAHL site 343100288).
 Site size: 0.1 hectares (DAAHL site 343100288).
 Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 150 people per hectare

689) Site: Zippori, Tell Ain. Sippori. Ain el Qasal.

Ancient name:

Location: Central Canaan region. 32.729657,35.271068.

Period(s): LB I, LB II (Dessel 1999: 8, 14-15; IAA site 28493/0).

Site size: 1.0 hectares (Dessel 1999: 8, 14-15).

Fortification reduction: 10% mound reduction (0.9 hectares).

Site division: 80% residential, 20% other

Total insulae in residential district: 15

Estimated total residential population: 540

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 500 (rounded)

Overall site population density: 500 people per hectare

690) Site: Ziwan, Ain. Zomet Ziwan.

Ancient name:

Location: Lake Kinnereth region. 33.088279, 35.798584.

Period(s): LB (IAA site 5491/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

691) Site: Zofim, Tel. Tzofim. Mahmule.

Ancient name:

Location: Cisjordan region. 32.493696, 35.562749.

Period(s): LB II (IAA site 8965/0).

Site size: 0.4 hectares (DAAHL site 353202328).

Fortification reduction:

Site division: Farmstead

Total insulae in residential district:

Estimated total residential population: 15

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 15

Overall site population density: 38 people per hectare

692) Site: Zomera, Tel. Sheik Abu Faraj.

Ancient name:

Location: Mediterranean Coastal region. 32.457646, 34.927318.

Period(s): LB (Goren 2004: 346).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

693) Site: Zorea. Wilfrid House.

Ancient name:

Location: Central Canaan region. 32.644509, 35.117623.

Period(s): LB (IAA site 25956/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

694) Site: Zureiq, Tell Abu. Tel Zariq. Ain el Jarba.

Ancient name:

Location: Central Canaan region. 32.634604, 35.127618.

Period(s): LB (IAA site 2498/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

695) Site: No Name Site 23674

Ancient name:

Location: Cisjordan region. 32.486004, 35.565586.

Period(s): LB (IAA site 23674/0, IAA site 23675/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

696) Site: No Name Site 441

Ancient name:

Location: Mediterranean Coastal region. 31.735577, 34.594914.

Period(s): LB (IAA site 441/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

697) Site: No Name Site 542

Ancient name:

Location: Mediterranean Coastal region. 31.755193, 34.641026.

Period(s): LB (IAA site 542/0).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

698) Site: No Name Below Har Kdumim

Ancient name:

Location: Central Canaan region. 32.674329, 35.300865.

Period(s): LB (Goren 2004: 354).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

699) Site: No Name West of Haror

Ancient name:

Location: Southern Desert region. 31.373445, 34.600481.

Period(s): LB (Goren 2004: 355).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

700) Site: No Name Southeast of Shechem

Ancient name:

Location: Cisjordan region. 32.095319, 35.380765.

Period(s): LB (Goren 2004: 353).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

701) Site: No Name North of Tel Lachish

Ancient name:

Location: Central Canaan region. 31.568260, 34.842556.

Period(s): LB (Goren 2005: 349).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

702) Site: No Name West of Tel Nagila

Ancient name:

Location: Central Canaan region. 31.513861, 34.752229.

Period(s): LB (Goren 2004: 348).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

703) Site: No Name West of Tarqumiya

Ancient name:

Location: Central Canaan region. 31.573082, 34.978428.

Period(s): LB (Goren 2004: 348).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

704) Site: No Name North of Revadim

Ancient name:

Location: Central Canaan region. 31.785537, 34.819540.

Period(s): LB (Goren 2004: 345).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

705) Site: No Name East of Tel Zafit

Ancient name:

Location: Central Canaan region. 31.701767,34.854697

Period(s): LB (Goren 2004: 344).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

706) Site: No Name South of Azekah

Ancient name:

Location: Central Canaan region. 31.696551, 34.934882.

Period(s): LB (Goren 2004: 344)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

707) Site: No Name South of Nizzanim

Ancient name:

Location: Mediterranean Coastal region. 31.698295, 34.640579.

Period(s): LB (Goren 2004: 342).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

708) Site: No Name Southwest of Tel Poran

Ancient name:

Location: Mediterranean Coastal region. 31.707169, 34.608877.

Period(s): LB (Goren 2004: 342).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

709) Site: No Name South of Shaar Hagi

Ancient name:

Location: Central Canaan region. 31.795020, 35.031741.

Period(s): LB (Goren 2004: 342)

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

710) Site: No Name North of Tel Ashdod

Ancient name:

Location: Mediterranean Coastal region. 31.762454, 34.670801.

Period(s): LB (Goren 2004: 341).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

711) Site: No Name South of Ashdod Yam

Ancient name:

Location: Mediterranean Coastal region. 31.759502, 34.614875.

Period(s): LB I, LB II (Nadelman 1996: 131).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

712) Site: No Name East of Ashdod

Ancient name:

Location: Mediterranean Coastal region. 31.795852, 34.678001.

Period(s): LB (Goren 2004: 341).

Site size: hectares

Fortification reduction:

Site division: N/A

Total insulae in residential district:

Estimated total residential population:

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: Unknown

Overall site population density:

713) Site: No Name Wadi el Hamrat Site 23

Ancient name:

Location: Hauran Plateau and Anti-Lebanon region. 33.583333, 35.875833.

Period(s): LB (Bonatz 2002: 296).

Site size: 1.0 hectares (Bonatz 2002: 296).

Fortification reduction: None

Site division: 80% residential, 20% other

Total insulae in residential district: 16

Estimated total residential population: 386 (0.67 village multiplier x 576)

Palace population:

Garrison population:

Temple population:

Estimated total maximum site population: 350 (rounded)

Overall site population density: 350 people per hectare



Figure 9.2 Late Bronze Age Canaan Site Distribution. Google Earth overlay by Titus Kennedy.²³¹

²³¹ Consult the online map ("Demographic Settlement Map of Late Bronze Age Canaan" www.APXAIIOC.com/LBmap) for the ability to zoom, rotate, view sites of a particular sub-period, and view regional boundaries. LB I, LB II sites red; LB I only sites yellow; LB II only sites blue; LB general sites black.

9.3 SETTLEMENT POPULATION CONCLUSIONS AND TOTALS

The Late Bronze Age settlement data from Canaan suggests that the period had a relatively stable population, with slight population growth from Late Bronze I into Late Bronze II. While most sites in which sub-periods were distinguishable exhibited evidence of occupation in both the Late Bronze I and Late Bronze II (165 sites), slightly more sites appear to have been occupied in Late Bronze II (217 sites) than in Late Bronze I (191 sites), indicating an expansion of settlement and of the population after ca. 1400 BCE in the second half of the Late Bronze Age. A total of 460 sites are designated Late Bronze (General).²³² This site increase of approximately 14% may have seen an analogous overall population growth, but the current data suggests a there may have been a smaller overall increase between the population peaks of Late Bronze I and Late Bronze II. The estimated approximate population of confirmed Late Bronze Age I sites equates to a maximum of 430,500, probably at the end of the period. The estimate for the approximate population of confirmed Late Bronze Age II sites equates to a maximum of 433, 500, likely near the end of the Late Bronze Age but prior to the “collapse” associated with the end of the period. The population estimate of general Late Bronze Age sites equates to 137,500, which could have been distributed throughout the period or fairly constant.²³³ Therefore, if Late Bronze Age general sites are considered to have been occupied in both Late Bronze I and Late Bronze II, in Late Bronze I, the peak population would be estimated at approximately 568,000; in Late Bronze Age II, the peak population would be estimated at approximately 571,500. This overall population peak in Late Bronze II logically would have occurred near the end of the period, but prior to the Late Bronze Age collapse, which included famines and war that would have reduced the population. However, the Late Bronze Age general sites could represent three different combinations of occupation: 1) both Late Bronze I and Late Bronze I, 2) majority Late Bronze I, or 3) majority Late Bronze II. Thus, Late Bronze I settlement population from sites with calculated estimates may have ranged from 430,500 to 568,000, while the Late Bronze II settlement population from sites with calculated estimates may have ranged from 433,500 to 571,500. A minimal amount of

²³² A total of 8 sites, all Late Bronze (General), could not be accurately mapped because of a lack of specific location data.

²³³ Estimates are rounded to the nearest 500.

sites—22—are tentatively confirmed to have been used exclusively as a cemetery during the Late Bronze Age, and thus had no permanent population. At least another 5 sites were used only as shrines during the Late Bronze Age and also had no permanent population. There were a total of 17 confirmed underwater sites cataloged separately, which usually would have been associated with a site on land as either an extension of that site or a harbor. Many of the sites—the remaining 401—are classed as “unknown” for the population estimate due to lack of data about the extent of the Late Bronze Age occupation at the site. While the majority of these sites could have been temporary or nomadic sites, storage sites, burial areas, or farmsteads, some appear to have possibly been larger settlements on the scale of village, and perhaps even a few would have been considered as large as town or city status.²³⁴ If each was considered a farmstead—unrealistic but useful to demonstrate the minimal effect this would have on overall population numbers—only approximately 6,000 people would be added to the total population. More likely is the scenario that some sites were temporary, some were used for storage, some were cemeteries, some were farmsteads, some were villages, and a few were towns and cities. Allowing for this possibility of diverse settlement types rather than sites of insignificant occupation, but recognizing that few likely had significant populations during the Late Bronze Age, an additional population of 17,500 for Late Bronze I and 20,000 for Late Bronze II may be hypothesized.²³⁵ Including this addition, the maximum settled population in Late Bronze I may have ranged from approximately 448,000 to 585,500, and the maximum settled population in Late Bronze II may have ranged from 453,500 to 591,500. However, two additional factors remain—textually attested settlements and undiscovered sites. Fortunately, these two factors are partially interrelated. A total of 108 textually attested Late Bronze Age settlements believed have been located within the boundaries of Late Bronze Age Canaan are classed as (IU), or identification unknown.²³⁶ Approximately 25% of the land area of Late Bronze Age Canaan has had extremely limited archaeological coverage, suggesting that the bulk of undiscovered sites would be located in these regions (GIS). If an additional 25% were to

²³⁴ A limited number of the sites appear to have had a significant surface area, but this may be reflective of periods other than the Late Bronze Age.

²³⁵ Distinction based on the proportion of increase in the number of LB sites from LB I to LB II (191 to 217).

²³⁶ See Chapter 8 for the complete list of textually attested sites or settlements in Canaan from the Late Bronze Age.

be assigned to the total site count or even the population total, this would result in too many sites or too high of a total population, as indicated by climate, geography, archaeological remains, and textual sources. Instead, some of these 108 unidentified settlements may have been located in the areas with poor archaeological coverage—mostly the northern portions of the Central Canaan and Mediterranean Coastal regions and the Hauran Plateau and Anti-Lebanon region.

Table 9.1 Late Bronze Age Site Types in Canaan

| Populated | Cemetery | Shrine | Underwater | Unknown | Unidentified | Total |
|------------------|-----------------|---------------|-------------------|----------------|---------------------|---------------|
| 268 | 22 | 5 | 17 | 401 | (108) | 713 (821?) |

The remaining unidentified settlements are likely connected to Late Bronze Age sites which have already been discovered but for which no clear identification has been proposed. Since approximately 37% of the known sites accounted for the vast majority of the settled population, this percentage may be projected onto the 108 unidentified textually attested settlements and compared with a general 20% increase in sites.²³⁷ Using this 37% with the 108 unidentified settlements equates to 40 sites. 40 sites out of 268 (the “population” sites) would equate to just under 15% of the total sites. This suggests that at maximum, a 15% population increase could be assigned for unidentified or undiscovered sites. Yet, because many of these textually attested sites may be connected to archaeologically known sites, this increase would be superfluous. That a 15% increase in sites would be too great further suggests that a general 25% population increase connected with the area of limited archaeological coverage would be even more excessive. The dearth of sites in these regions may be reflective of both poor archaeological coverage and lower settlement density during the Late Bronze Age. Thus, a general 10% population increase is hypothesized for the undiscovered and unidentified sites in Late Bronze Age Canaan. This final factor brings the estimated totals to between 492,500 and 643,500 for Late Bronze I and 499,000 and 650,000 for Late Bronze II. Expressing these ranges as averages equates to ~568,000 for Late

²³⁷ 268 sites accounting for nearly all of the population out of a total of 712 sites.

Bronze I and ~574,500 for Late Bronze II. Modified averages, calculated without including the Amman region, equate to 552,500 for Late Bronze I and 561,500 for Late Bronze II. The population percent increase between Late Bronze I and Late Bronze II, based on the estimated population from confirmed sites, plus additional estimated and undiscovered sites, would be approximately 1.3%.²³⁸

Table 9.2 LB I, LB II, and LB (General) Populations

| | Late Bronze I | Late Bronze II | Late Bronze (General) |
|-------------------------------------|---------------|----------------|-----------------------|
| Confirmed Area Sites | 430,500 | 433,500 | 137,500 |
| Additional Estimated | 17,500 | 20,000 | 0 |
| Unidentified/Undiscovered | 44,500 | 45,500 | 13,500 |
| Total | 492,500 | 499,000 | 151,000 |
| Modified Total²³⁹ | 478,000 | 487,000 | 149,500 |

Table 9.3 Estimated Population of Late Bronze Age Canaan²⁴⁰

| | |
|---------------------------------------|-----------------|
| Late Bronze I (Range) | 478,000-643,500 |
| Late Bronze II (Range) | 487,000-650,000 |
| Late Bronze I (Average) | ~568,000 |
| Late Bronze II (Average) | ~574,500 |
| LB I Modified (Average) | ~552,500 |
| LB II Modified (Average) | ~561,500 |
| Percent Increase LB I to LB II | ~1.3% |

The apparently very slight increase in peak population from Late Bronze I to Late Bronze II, much less than would be expected by normal population growth, suggests that some type of event or events took place that reduced the population or negated

²³⁸ Increase from 492,500 to 499,000.

²³⁹ Minus the Amman region, which may have not been included in Late Bronze Age Canaan. See Chapter 2.

²⁴⁰ Ranges include the low of the modified total and the high of the all inclusive total.

population growth. The most obvious options include war, famine, disease, migration, or a combination of the four. The event or events would have likely taken place sometime near the transition from Late Bronze I to Late Bronze II because of the extremely similar population peak estimates between the sub-periods. Expansion of settlement appears to have occurred in Late Bronze II, as there is a marked increase in the number of sites in Late Bronze II, which further suggests that the event or events took place sometime around this sub-period transition placed in absolute chronology ca. 1400 BCE.

Although the different geographic regions have not been equally explored in archaeological terms, the occupational data of the sites indicates that settlements were distributed most densely near water, such as the Jordan River, Kishon River, Yarmuk River, Jabbok River, around Lake Kinnereth, along certain parts of the Mediterranean coast, and in valleys where rainfall and springs would allow sufficient water supplies. This settlement pattern is logical in light of the necessity of water, food supplies, moderate climate, and arable land. The Southern Desert region was the most sparsely populated (16 sites), and nearly all of these sites could be considered on the fringe of the desert. The Hauran and Anti-Lebanon region also appears to have had a limited population, but this could be more reflective of limited archaeological coverage of the region than a dearth of settlement there during the Late Bronze Age. Many of the unidentified or undiscovered sites may have been located in that region. Interestingly, the middle of the Central Canaan region, east of Netanya and Arshaf on the Mediterranean coast and west of the Cisjordan highlands is almost devoid of settlements in the Late Bronze Age. This could be reflective of poor climatic and topographical conditions, or archaeological coverage in this area may not have been as comprehensive. The Cisjordan highland area, which is often thought to have been sparsely populated during the Late Bronze Age, does not appear to be the case according to the current archaeological settlement data. The settlement data essentially confirms what may be hypothesized by ethnographic study—areas which were more suitable for settlement because of geographic and climatic conditions had a greater concentration of settlements.

CHAPTER 10

A NOMADIC POPULATION ESTIMATE FOR LATE BRONZE AGE CANAAN

The nomadic population inhabiting the area in and around Canaan during the Late Bronze Age appears, from texts of the period, to have been of significant size (Hallo and Younger 2000: 22; Hopkins 1993: 210; Rosen 1992: 64). Thus, estimating the total population of this segment of society is necessary for a more accurate overall population estimate of Canaan. While a few texts may give clues as to the total amount of nomads in the southern Levant being in the ten thousands, neither the average population density of nomads in the region nor the overall total population of nomads can be derived from these texts.²⁴¹ Based on previously suggested methodology (cf. Chapter 7), the estimated nomadic population for Canaan during the Late Bronze Age may be calculated by dividing the area into separate regions distinguished by climatic and geographical features, then multiplying the available land use area by the separate density coefficients for nomads living in: 1) coastal regions, 2) river, lake, valley, and plain regions, 3) highland and mountainous regions, or 4) arid and desert regions. Additionally, an overall range may be included by calculating the entire region according to nomadic population densities derived from various ethnographic studies.²⁴² The calculations for the surface area of the regions were done using ArcGIS. Although a precise figure for the total area occupied by settlements cannot be calculated, a figure of no more than 2000 hectares is likely.²⁴³ If a large buffer zone is placed around each settlement by artificially expanding them to 1000% of their actual size, then approximately 20,000 hectares (200 km²) should be subtracted from the useable figure for the nomadic region. However, since this settlement area plus buffer zone accounts for only approximately 0.5% of the total 40,000 km² surface area of Late Bronze Age

²⁴¹ The Memphis Stele of Amenhotep II mentions 15,200 shasu captives, which suggests that there was a population of nomads significantly greater than 15,200 living in Canaan at some point during the Late Bronze Age.

²⁴² It should be noted that the data for nomadic population densities derived primarily from demographic studies of the California Indians is thought to have been considerably higher prior to 1769 and the entrance of settlers bringing new diseases into region (Preston 2002: 69-121). This suggests the possibility of slightly higher numbers of nomads in Canaan than the utilized densities allow.

²⁴³ The figure of 2000 hectares was calculated by adding the approximate Late Bronze Age settlement area and estimating the additional unknown settlement areas, which typically appear to be very small.

Canaan, it is ultimately negligible due to the margin of error associated with calculating the nomadic population.²⁴⁴

Table 10.1: Proposed Nomadic Population Densities

| Coast | Valley/Plain | Mountain | Desert | Overall |
|-------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|
| 0.9 per km ² | 1.3 per km ² | 0.3 per km ² | 0.1 per km ² | 0.8-1.1 per km ² |

10.1 COASTAL REGION NOMADIC POPULATION ESTIMATE

The total calculated area of the coastal region in Canaan used for the purposes of estimating the possible nomadic population is approximately 2,200 km² (ArcGIS).²⁴⁵ If 2,200 km² is multiplied by the proposed 0.9 people per km² coastal nomadic population density, then around 2,000 (rounded from 1,980) nomads may have occupied the coastal region of Canaan during the Late Bronze Age.

10.2 VALLEY/PLAIN REGION NOMADIC POPULATION ESTIMATE

The area considered to be valley, plain, or near rivers or lakes covered the greatest surface area of Canaan during the Late Bronze Age. This total calculated area is approximately 24,300 km² (ArcGIS).²⁴⁶ Using the 1.3 people per km² suggested density for this type of region, the estimated nomadic population would be approximately 31,600 (rounded from 31,590). Thus, according to this hypothesis, the vast majority of nomads in Late Bronze Age Canaan would have typically lived in the valleys and plains rather than the desert regions, mountains, or on the coast.

10.3 DESERT/ARID REGION NOMADIC POPULATION ESTIMATE

The desert and extremely arid regions of Canaan may have occupied a total land area of approximately 5500 km² for most of the Late Bronze Age.²⁴⁷ Thus, according to

²⁴⁴ Lake Kinnereth, or the Sea of Galilee, occupies approximately 170 km², while the Jordan river may occupy approximately 250 km² of surface area. The Dead Sea was not calculated as it is considered to have been a boundary of Canaan in the Late Bronze Age. Thus, the overall land surface area of Canaan in the Late Bronze Age was slightly under 40,000 km².

²⁴⁵ The coastal area was measured from about 5km to 7km inland from the Mediterranean Sea.

²⁴⁶ The surface areas of the Jordan River and Lake Kinnereth were subtracted from this total, although they only account for approximately 420 km² of surface area.

²⁴⁷ 5000 km² west of Dead Sea and Jordan River and 500 km² east of the Jordan River. The vast arid regions of southern and eastern modern Jordan are not considered to have been part of Canaan in the Late Bronze Age.

the suggested population density of desert regions for nomads, the total nomadic population for the desert regions in Canaan may have only been about 550 people during the Late Bronze Age. As the desert regions are particularly inhospitable and not conducive to sustaining life, this extremely low population appears plausible. While additional nomads may have lived in arid regions to the south and east of Canaan, very few probably lived within the desert regions inside the bounds of Late Bronze Age Canaan.

10.4 HIGHLAND/MOUNTAINOUS REGION POPULATION ESTIMATE

The total calculated area of mountainous regions of Canaan used for the purposes of estimating the possible nomadic population is approximately 7600 km² (ArcGIS).²⁴⁸ Using the proposed mountainous region population density of 0.3 people per km², a mountainous region nomadic population of about 2,300 (rounded from 2,280) is suggested.

²⁴⁸ Approximately 1700 km² east of the Jordan River, 3200 km² west of the Jordan River, and 2700 km² for areas north of the Jordan River.



Figure 10.1 Nomadic Regional Divisions. Google Earth Pro image digitally manipulated by Titus Kennedy.

10.5 TOTAL LATE BRONZE AGE CANAAN NOMADIC POPULATION ESTIMATE

By adding together the four separate climatically and geographically designated nomadic regions within Late Bronze Age Canaan, the total suggested population figure is approximately 36,000 nomads.²⁴⁹ If the total land area of Canaan, approximately 40,000 km², is multiplied by the suggested overall nomadic population densities of 0.8 people per km² and 1.1 people per km², a range of 32,000 to 44,000 may be hypothesized (Cook 1978: 91; Preston 2002: 69-121; Barth 1961: 1, 12). Although one study suggested the possibility of nomadic hunter-gatherer societies with population densities as high as 3 people per km², it is unlikely that Canaan, especially in the Bronze Age, ever reached anywhere near this nomadic density (Binford 2001: 425-426). Thus, the total nomadic population of Canaan in Late Bronze Age may have ranged from approximately 32,000 to 44,000, but perhaps was closer to the figure of 36,000.

Table 10.2: Proposed Nomadic Population Estimate of Late Bronze Canaan

| Coast | Valley/Plain | Mountain | Desert | Overall |
|--------------|---------------------|-----------------|---------------|--------------------------|
| ~2,200 | ~31,600 | ~2,300 | ~550 | ~36,000 (~32,000-44,000) |

²⁴⁹ The composite total of 36,400 was multiplied by 99.5%, equaling 36,218, to account for the area lost to settlements and their buffer zones, then rounded. The difference is negligible due to margin of error.

CHAPTER 11

CONCLUSION

11.1 SUMMATION OF THE DATA

This analysis of Late Bronze Age Canaan demonstrates that in Canaan there are 713 archaeological sites which were used in some form during the Late Bronze Age, perhaps an additional 108 existed, known from texts of the period but which remain undiscovered or at least unidentified archaeologically. Research suggests that the unknown number of sites would significantly increase the overall population total—hypothesized by this study to be a suggested 10% increase. According to the methodology used in this study, the total peak population of Canaan in Late Bronze I was approximately 588,000 people, with approximately 552,000 forming the settled population and approximately 36,000 forming the nomadic population of the region.²⁵⁰ For Late Bronze II, the total peak population of Canaan was approximately 597,000. The population growth between the peak of Late Bronze I and the peak of Late Bronze II was approximately 1.3% to 1.5%, likely due to an event sometime around the transition between the periods that resulted in a significant population decrease. The largest site in Canaan during this period was Hazor, which appears to have reached its peak population of approximately 45,000 near the end of Late Bronze Age I.²⁵¹ The lowest population sites would have been those of individual farmsteads, isolated cultic sites, or temporary settlements.

Table 11.1 Total Estimated Population of Late Bronze Age Canaan

| | |
|---------------------------------------|----------|
| Late Bronze I | ~588,000 |
| Late Bronze II | ~597,000 |
| Late Bronze Age (Maximum Peak) | 650,000? |

When compared to census numbers from both the middle of the 19th century and the current day, the proposed population of Canaan in the Late Bronze Age appears

²⁵⁰ Using modified average for settled population, middle range for the nomadic population, and rounding to the nearest 1,000. The ranges are detailed in Chapter 9.

²⁵¹ See the entry on Hazor in Chapter 9 for details on the population estimate.

plausible. For the middle of the 19th century, a population estimate reconstructed from Ottoman census data suggests a population of the area of British Mandate Palestine during the Late Ottoman Period of just under 500,000 (Gottheil 1975: Table 7). Further, the point is made that many travelers and explorers from the middle of the 19th century described the demographic landscape of Palestine as desolate and very empty of people (Gottheil 1979: 310, 318). British Mandate Palestine occupied approximately 27,000 km², or about 68% in comparison to the approximately 40,000 km² of Late Bronze Age Canaan (GIS). Because this area of Mandate Palestine was substantially less than the area of Late Bronze Age Canaan, the entire area within the ancient boundaries of Canaan during the 19th century would have had a population significantly exceeding 500,000—perhaps around 750,000 based on land area. Described as desolate in relation to population by numerous sources, a population figure near this 500,000 in an even larger area cannot be described as numerous or dense. When comparing the current population of the area which Late Bronze Age Canaan encompassed to the estimated ancient population of the period, the idea of nearly 600,000 people in the entire region being extremely sparse appears evident. With a current population for the region around 24 million people, the estimated Late Bronze Age population stands at only about 2.5% of the current population.²⁵²

Table 11.2 Approximate Population Comparisons in the Canaan Region

| | |
|--|-------------------------|
| Late Bronze Age Canaan (LB II) | 597,000 |
| Late Ottoman Period (Mandate Palestine) | Over 500,000 (750,000)? |
| Modern: 2013 (Canaan Area) | 24,000,000 |

According to the burial data, the sex ratio was nearly even at approximately 0.94:1 male/female, which would have been reflected in the typical nuclear family. On average, the nuclear family would have been made up of a father, mother, 2 sons, and 2 daughters, with the occasional additional child of either gender.

²⁵² Based on calculations of the modern populations of southern Lebanon, southwest Syria, Jordan, Israel, the West Bank, and Gaza from the CIA World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html>). For comparison, the modern population of Egypt exceeds 85 million people and is one of the more densely populated countries, while New Kingdom Egypt has been estimated to have had a population of about 4.5 to 5 million, or 5% to 6% of the modern total (Baer 1963: 42-44; cf. also Chapter 6). Canaan of the Late Bronze Age would have had only about 12% of the estimated population of New Kingdom Egypt.

Table 11.3 Sex Ratio

| | |
|---|--------------------|
| Late Bronze Age Canaan | 0.94:1 Male/Female |
| Modern 3rd World (Chad) | 0.93:1 Male/Female |
| Ancient Luristan | 0.93:1 Male/Female |
| Modern World (Overall) | 1.01:1 Male/Female |

The high infant mortality rate, suggested by burial data to be between 10% and 30% at most sites, significantly affected the life expectancy from birth, which was about 23 years. However, for those who lived past early childhood, the average life expectancy was about 31 years—but a range of 25 to 37 for the average resident of Canaan may more accurately reflect life in the period. Although average life expectancy rarely exceeded the early 30's, about 3% of the population lived up to age 60 or more.

Table 11.4 Life Expectancy and Mortality

| | |
|------------------------------|-----------------|
| Life Expectancy (From Birth) | ~23 +/- 5 years |
| Adult Life Expectancy | ~25-37 years |
| Infant Mortality | ~20% |
| Maximum Age | 60+ (~3%) |

Thus, there was an extremely wide spread of life spans in Late Bronze Age Canaan, in theory due primarily to lack of medical and nutritional technology which drastically influenced the health of the population.

11.2 GENERAL ARCHAEOLOGICAL CONTRIBUTIONS

The study could be potentially useful to archaeology in general because it serves to test a methodology in archaeological demography and to fill a gap in knowledge within archaeology of the region. Specifically, the analysis contributes three primary things to archaeological resources of the region: 1) a revised methodology for estimating ancient settlement populations, 2) a comprehensive list of Late Bronze Age sites in Canaan, 3) a map including all Late Bronze Age sites in Canaan divided by LB I and LB II, LB I, LB II, and LB general, and 4) detailed demographic and settlement information about Canaan during the Late Bronze Age. Scholars interested in

conducting similar studies of ancient settlements may utilize and modify the methodology used in this study to obtain more accurate population estimates than using static population density coefficients based on anachronistic data or guessing. Although the equation was made specifically for Canaan in the Late Bronze Age, modification can be easily made to adapt the methodology to other periods and regions by inserting the appropriate period and region specific data into the methodology. Investigators needing to access a comprehensive list of Late Bronze Age sites in Canaan now have an updated resource that makes this possible, and the list includes approximate site area, site type, and estimated population during the Late Bronze Age when sufficient data is available. Previously, lists were incomplete and scattered throughout various publications, and often excluded information on site area. As new sites are discovered in the future, it will be necessary to make additions to the list. This list, and the map to which the list is related, also aid in locating sites of interest. The demographic information derived from this study allows a more complete and accurate view of Canaan during the Late Bronze Age than was previously known, including settlement distribution, population distribution, population estimates, nuclear family size, house size, sex ratio, and average life expectancy. Demographic inquiries into Canaan during this period were virtually absent from scholarship, and thus the ideas about the population of Canaan during the Late Bronze Age were based on extremely limited data or hypotheses. The study demonstrates that the Late Bronze Age in Canaan was a substantial period of both settlements and population, and that it was a period which likely increased in population from the previous, rather than a massive decline from the Middle Bronze Age. While the Late Bronze Age is often viewed as a period which saw decline from the Middle Bronze Age in terms of urbanization, settlement population, and total population. However, archaeological investigation of several ancient sites indicates that the Late Bronze Age cities expanded beyond the size of the Middle Bronze Age settlement. These sites include Akko, Ashdod, Deir Alla, Eton, Gath, Hazor, Kassis, Kumidi, Lachish, Laish, Michal, Shechem, Taanakh, and perhaps Dothan, Hesi, and Qiri (DAAHL site 353202648; Ben-Shlomo 2005: 2; Kafafi 2009: 587-594; Faust 2011: 220; Uziel 2003: 39; Bienkowski 1987: 50-51; Ben-Tor et al. 2003: Table 1, 1, 245-276, 369; Marfoe 1998: 170; Clamer and Ussishkin 1977: 71; Ben-Dov 2011: 9, Plan 1; Herzog

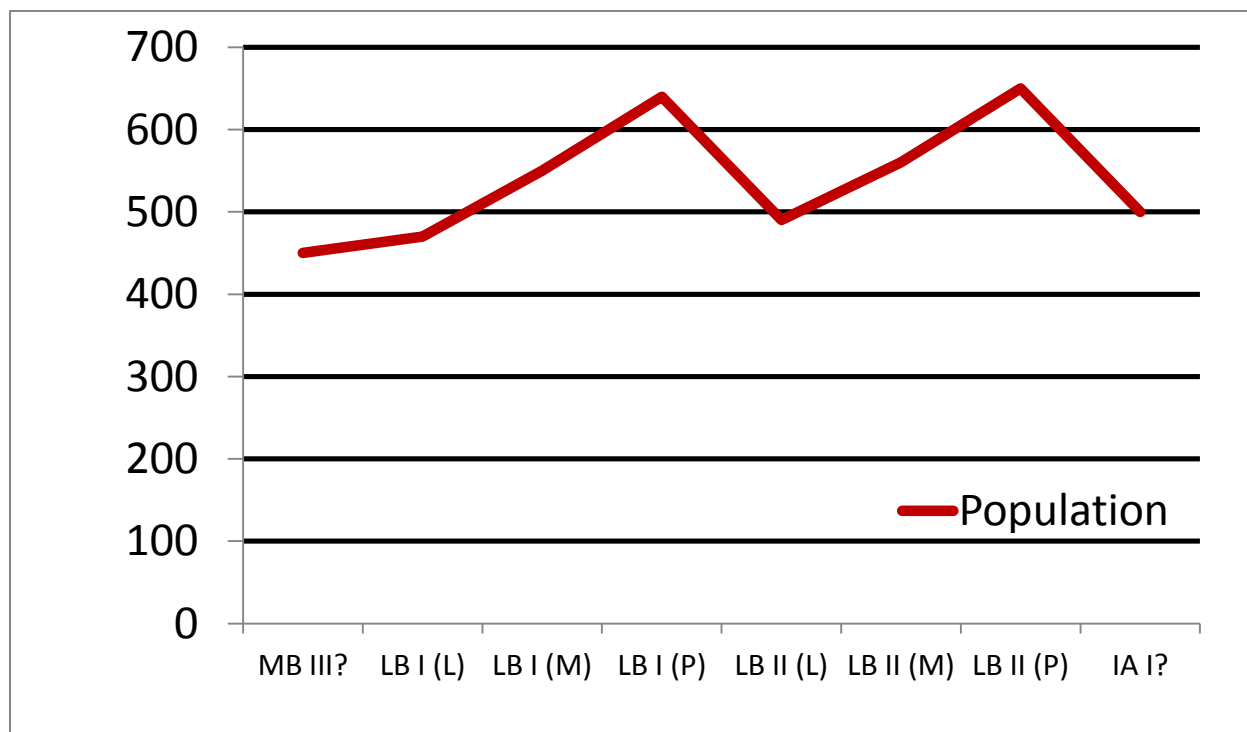
1989: 38, 41; Campbell 2002: 106-222; DAAHL site 353202495; Master et al 2005: 49; Tombs 1989: Fig 1; 160; Ben-Tor and Portugali 1987: 257-259).²⁵³ Therefore, instead of abandonment or reduction of many prominent sites, the Late Bronze Age appears to have been a period of at least moderate urban expansion. The data relating to the overall number of settlements between the final phase of the Middle Bronze Age and the Late Bronze Age is less clear due to lack of a comprehensive Middle Bronze Age study for all of Canaan, but regional analyses indicate that there was not a massive drop in the overall number of settlements, but perhaps an expansion in some areas and reduction in others, equating to a similar overall number. For example, the number of settlements in the Jordan Valley appear to have been approximately equal between the final phase of the Middle Bronze Age and the Late Bronze Age; the number of Late Bronze Age sites in modern Jordan slightly exceeds the number of Middle Bronze Age sites; the number and density of all Middle Bronze Age sites vastly exceeds recorded Late Bronze Age sites in the area of the West Bank according to another database (Schaaf 2012: 112-113; Table 2.8; Figure 2.37; MEGA Jordan Database; USC West Bank Archaeological Site Database). Data for modern Lebanon and Syria calculating the number of Middle Bronze Age III sites versus the number of Late Bronze Age sites is unavailable. With data pointing to the expansion of many cities in the Late Bronze Age coupled with a decrease in the number of settlements in certain regions of Canaan, the trend towards increased urbanism in the period, perhaps in association with the continued rise of city-states, appears to be the case. While this might mean that the total number of sites was approximately equal or even slightly lower in the Late Bronze Age, the overall population appears to have increased.

The information acquired from the demographic analysis of the Late Bronze Age also suggests that the period of major demographic shift probably occurred around the transition between Late Bronze I and Late Bronze II rather than between Middle Bronze III and Late Bronze I. This population shift, appearing to be the result of an event or events which reduced the overall population of Canaan around the midpoint of the Late Bronze Age, resulted in lower than normal overall population growth throughout the

²⁵³ According to ceramic distribution from a survey of the site, Tell el Farah (South) appears to have covered the entire mound in the Late Bronze Age, so it may have equaled the Middle Bronze Age settlement or perhaps even exceeded it in density (<http://farahsouth.cgu.edu/1998/surv9812.html>).

period, even though slight gains appear to have been made in both overall population and settlements. This demographic data can now be used for and integrated into a variety of related archaeological and historical studies of the period or for comparative studies between periods and regions.

Graph 11.1 Theoretical Population



11.3 CONTRIBUTIONS TO BIBLICAL ARCHAEOLOGY

In addition to the possible contributions to general archaeological and historical information for the region, the study also has relevance to Biblical archaeology in particular. The land of Canaan is a key geographical area in the Hebrew Bible, and the additional information about this region, specifically in the time prior to the Israelite Monarchy, serves to further illuminate the demographic, archaeological, geographical, and historical background of certain narratives. The region of the study lies within the area where the majority of the Hebrew Bible was written, and thus gives important contextual and background information. Particularly, this study illuminates the Late Bronze Age, which was a key transitional period in Canaan and a period which ultimately impacted the culture of the Israelites and some of the material in the Hebrew Bible.

For inquiries into the cultural and demographic similarities, differences, and changes between Canaanites and Israelites, a detailed demographic analysis of Canaan in the Late Bronze Age is essential. This may include topics such as the composition of the family in Late Bronze Age Canaan in comparison to the composition of the family in ancient Israel, a comparison of life expectancy from burials and texts, and comparison of settlement densities. Comparative studies such as those mentioned above may clarify similarities and differences between Canaanite and Israelite culture at the demographic level, giving insight into what the ancient Israelites may have adopted, what they may have been influenced by, and if certain demographic factors were more closely related to geography, climate, and technology rather than culture or religion. As a side topic, the study of house floor area and average living space per person may assist in the understanding of the development of houses from the Late Bronze Age into the Iron Age and the idea of Israelite houses—a field of inquiry that has seen much research in the past.²⁵⁴

Scholars wishing to further investigate the issue of the Israelite settlement may recognize that an examination of the demographics and demographic shift through the Late Bronze Age could aid in illuminating that issue. Further, if one wishes to explore the viability of various Israelite Conquest models, the demographic information from Late Bronze Age Canaan serves an important role in relation to the settlements which were occupied, abandoned, settled, or resettled in the period, in addition to overall trends of regional demographic shift and population estimates.

Finally, the study may aid in the understanding of various population numbers mentioned in the Hebrew Bible, especially those relating to city and town populations or regional populations. The methodology presents a technique by which to evaluate those population numbers which mention specific cities or regions by allowing application of the general methodology crafted to a certain period and geographical area. The demographic estimates from the study also serve as examples of the type of population numbers to expect from various settlements and regions within the southern Levant, with allowance that the population would have expanded in later periods.

²⁵⁴ For a discussion of the development of the Four-Room house and its relation to the Late Bronze Age, see Faust and Bunimovitz 2003: 22-31 and references within.

11.4 IMPLICATIONS FOR LATE BRONZE AGE CANAAN

The data acquired and estimates produced from the study have a variety of implications on the understanding of Canaan in the Late Bronze Age, and perhaps to some degree the greater regions of the Levant and the Ancient Near East.

The population results and the number of settlements demonstrate that the Late Bronze Age in Canaan was not an ethereal period in which few settlements were occupied, urban centers were small or nearly non-existent, the people were primarily nomadic, and the population was small; on the contrary, the site occupational data and population estimates demonstrate that the Late Bronze Age was actually a period of substantial settlement and even urban settlement in Canaan, and that the population had continued to increase and expand from the Middle Bronze Age. This trend of expansion, however, is only logical as populations increase and settlements expand or are newly created over time. Without evidence of a drastic and catastrophic event or sequence of events that would cause massive population decline, such as multiple epidemics, famines, regional genocide, or natural disasters that could nearly wipe out the population, an increase in regional population, up to certain limits, is to be expected over the course of decades and centuries. The population estimates seem to affirm the normal progression of population increase and expansion over time. Even if an event or events occurred near the transition from Late Bronze I to Late Bronze II, the population rebuilt itself and even exceeded the population of Late Bronze I. Because the current archaeological site data does not indicate an overall and notable population decrease, and there is no other evidence to suggest such an absence or decrease of population in Canaan during the Late Bronze Age, the notion that the Late Bronze Age lacked a substantial settled population and that the period was drastically smaller in population than the Middle Bronze Age, should be discarded.

Another implication for the Late Bronze Age in Canaan is the issue of demographic shift in and around the period. Previous studies had suggested that there may have been a great demographic shift between the end of the Middle Bronze Age and the beginning of the Late Bronze Age. However, the site data and demographic estimates now suggest instead that the significant demographic shift took place not

between the end of the Middle Bronze Age and the beginning of the Late Bronze Age, but between Late Bronze Age I and Late Bronze Age II. The issue of demographic shift between the end of the Late Bronze Age and the beginning of the Iron Age is a topic not encompassed by this study, but there are indications of some demographic continuity between the end of the Late Bronze Age and the beginning of the Iron Age. This LB I to LB II demographic shift rather than a MB III to LB I shift is just one of many facets of the problem of projecting the most significant changes between periods based on their nomenclature. Even though important and definable changes may have taken place between the Middle Bronze Age and the Late Bronze Age, and between the Late Bronze Age and the Iron Age, this does not mean that all types of significant changes in the region must have necessarily taken place at those specific times.

In relation to the broader area of the Levant and even the Ancient Near East, the demographic analysis of Canaan during the Late Bronze Age carries at least three significant, although unsurprising, implications. First, the population estimates indicate that Canaan was quite a small region relative to other areas such as Egypt, Anatolia, and Mesopotamia. Thus, it is completely logical and to be expected that Canaan does not appear to have exercised control over neighboring regions in this period, but was instead under the control of or heavily influenced by neighboring regions with larger populations and more centralized government. Second, the life expectancies for Canaan during the Late Bronze Age do not significantly differ from those of the greater region of the Ancient Near East during this period or other adjacent periods. Therefore, the implication is that health and nutrition was not widely divergent from the rest of the Ancient Near East, even if Canaan was a less powerful region politically. Third, the average nuclear family size appears to have been approximately the same throughout the Levant in the Late Bronze Age. Whether or not this is a phenomenon that reached into areas such as Egypt and Mesopotamia during the period may be an interesting topic for demographic comparisons.

As a final possible implication for Late Bronze Age Canaan, the occupational status of sites and the population estimates of both the settlements and nomadic regions may impact the view of ancient texts addressing Late Bronze Age Canaan. For example, documents from the period such as the Amarna Letters, Tanaach Tablets,

Egyptian papyri, biographies, campaign accounts, and topographical lists give the impression that there were a great number of occupied cities, towns, and villages in Canaan during the Late Bronze Age, that the settled population of the region was significant, and that there was also a substantial nomadic population. The demographic analysis of Canaan in the Late Bronze Age confirms these impressions in demonstrating the great number of sites which were occupied in the period, the substantial sedentary population, and the probable nomadic population of the region. That texts of the period would agree with the archaeological data of the period appears logical, but certain philosophical viewpoints wish to reduce the importance of ancient texts or eliminate their use altogether in the reconstruction and understanding of history. However, the information and results of this study affirm the relevance and usefulness of the ancient documents in illuminating life in the past, alongside the strictly archaeological remains.

11.5 FUTURE RESEARCH

Since archaeological remains are continually being uncovered and analyzed, the opportunity for future research on the demography of Late Bronze Age Canaan is ongoing. Whenever surveys or excavations discover new sites in Canaan that contain Late Bronze Age remains, these sites can be added into the database and new population estimates can be made. Additionally, when new burials are discovered and analyzed that contribute data about the gender and age at death of human skeletal remains from Late Bronze Age Canaan, this data can be added into the dataset for gender distribution and life expectancy in order to supplement and bolster the findings of the study. Sites which have been confirmed already as Late Bronze Age may have additional excavation carried out on them that further illuminates important factors such as city layout, residential quarters versus public, religious, and administrative areas, and building sizes. In particular, the excavation of Late Bronze Age settlements may add to the corpus of data about house size in the Late Bronze Age. If new tablets are discovered which contain information about Late Bronze Age Canaan, these may contribute to the dataset concerning the composition and size of the family during the period, mention previously unknown sites, or even contain census information. All of the

above, possible future data, would serve to enhance the demographic understanding of Late Bronze Age Canaan through the addition of new, relevant data. Further, some of the data may even prescribe modification of the methodology in order to yield more accurate results.

In addition to the ongoing updates of the datasets and methodology, future research opportunities include a variety of comparative studies and application of the methodology to other periods and regions. For comparative studies, the possibilities are expansive—comparisons of the Late Bronze Age between other periods in the region, and comparisons of Canaan to other regions in the Ancient Near East and beyond. The application of the proposed methodology to other periods and regions could potentially assist in refining archeological demographic techniques and bringing about more precise and comprehensive data for the ancient world. While the methodology was developed for use within Late Bronze Age Canaan, modification of region, period, and cultural specific factors could be made to allow application to areas such as Egypt, Mesopotamia, Anatolia, Greece, and Mesoamerica.

Relating specifically to Biblical Archaeology, future research stemming from this study could address the changing demographic trends in the southern Levant through various Biblical periods. The idea of compiling comprehensive site lists for specific archaeological periods could also be done, and then compared with the geographical lists found in the Biblical texts. A topic which has been in Biblical Archaeology—the time, nature, and progression of the Israelite settlement—could also be further analyzed in demographic terms and could utilize the information from this study as one of the relevant sources.

Finally, archaeological research and excavation of specific sites relevant or possibly relevant to the Late Bronze Age and the demographic understanding of the period and region could be conducted in the future. This includes 1) sites known to have Late Bronze Age materials, but the strata have not been exposed; 2) sites known to be occupied during the Late Bronze Age according to ancient texts but are either undiscovered or the Late Bronze Age settlement has not yet been found on the site; 3) human skeletal remains from the period which could be analyzed for gender, age at death, genetic ancestry, pathology, and physical traits.

11.6 CONCLUSION

Although the available data is less than optimal from many sites and it is acknowledged that the estimates cannot be completely accurate, the methodology, data, and results of the study are as comprehensive and accurate as was possible. Further, a demographic analysis of Canaan to this degree of detail and scope had not previously been attempted. Thus, currently, there are no other archaeological demography studies of ancient Canaan that present and interpret the material more comprehensively. Due to the nature of archaeology and the incompleteness of the archaeological record, only the best possible results may be obtained, rather than results of complete accuracy and totality. However, the ongoing archaeological work in the region encompassing ancient Canaan will allow the constant updating of the datasets in this study, and significant discoveries or new theories may prompt the revision of the proposed methodology and an improved accuracy of the results. Therefore, future work may build upon this analysis and continue to expose a clearer picture of the demography of Late Bronze Age Canaan.

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