Urban systems in the Roman Near East: historical and functional dimensions of urbanism in Roman Syria, Mesopotamia, Palestine and Arabia

Kloeg, P.

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Once more unto the breach, dear friends, once more

William Shakespeare. *Henry V.* Act 3, Scene 1

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Introduction

The aims of this book are twofold. As a first step, an attempt will be made to achieve a comprehensive reconstruction of the urban system, or systems, of the Roman Near East, comprising the six Roman provinces of Syria Coele, Syria Phoenice, Syria Palaestina, Osrhoene, Mesopotamia and Arabia. Chronologically the focus will be on the second and early third centuries C.E.

As a second step the regional and sub-regional urban patterns which can be discerned in each of these provinces will be analysed from a variety of angles. At the most basic level, we will be guided by the seemingly simple question as to why the regional urban systems of the Roman Near East looked the way they did. Why, for instance, did some provinces have a relatively small number of large cities, whereas other provinces were characterised by a dense pattern of relatively small cities? Can most of these contrasts be explained as reflecting the operation of geographical factors, or were regional urban patterns also shaped by historical 'path dependencies', created by political decisions taken long before the arrival of Roman armies?

At the same time, regional urban patterns will be examined from the perspective of economic integration. This term can be understood in multiple ways. In most publications written by economic historians it refers to an increase in the intensity of movements of goods, services and capital among various countries or regions, although permanent or temporary migrations of workers are also discussed under this heading.[1] The most obvious way of studying this type of economic integration is to look for archaeological or literary evidence of goods being carried from one area to another. An important weakness of these approaches is that they shed little light on movements of low-value perishable commodities such as grain.

Levels of economic integration can, however, also be studied by looking at regional urban patterns. In an essay on the political economy of the Roman empire, the Cambridge ancient historian Keith Hopkins observed that Syrian Antioch maintained or even expanded its

[1] Willem M. Jongman, 'The Benefits of Market Integration: Five Centuries of Prosperity in Roman Italy', in *The Economic Integration of Roman Italy*, ed. Tymon C. A. De Haas and Gijs W. Tol (Brill, 2017), 15–27, https://doi.org/10.1163/9789004345027_003; Gary M. Feinman, 'Roman Economic Practice across Time and Space: An Outside Perspective', in *The Economic Integration of Roman Italy: Rural Communities in a Globalizing World*, ed. Tymon C. A. De Haas and Gijs W. Tol, 2017; Keith Hopkins, 'Taxes and Trade in the Roman Empire (200 BC-AD 400)', *The Journal of Roman Studies* 70 (1980): 101–25; Keith Hopkins, '10 Rome, Taxes, Rents and Trade', in *The Ancient Economy*, ed. Walter Scheidel and Sitta von Reden (Edinburgh University Press, 2002), 190–230, https://doi.org/10.1515/9781474472326-016; Paul Halstead, 'Traditional and Ancient Rural Economy in Mediterranean Europe: Plus Ça Change?', in *The Ancient Economy*, ed. Sitta von Reden and Walter Scheidel (New York: Routledge, 2002), 53–70; And see the contributions in L. de Ligt and Laurens Ernst editor Tacoma, *Migration and Mobility in the Early Roman Empire*, Studies in Global Social History ; v. 23 (Leiden: Brill, 2016).

population size after it had ceased to be one of the capitals of the Seleucid empire, without free food distributions as seen in Rome. In his view the only possible explanation for this is that income from taxation was replaced by income from manufacture and trade.[2] A massive urban population depending on income from trade and manufacture to acquire food, presupposes a high level of economic integration.

This theory raises a number of questions. How many people lived in Syrian Antioch during the second and early third centuries C.E.? How large was the city's administrative territory? Can we be certain that Antioch's population could not be sustained by the food crops grown in its administrative and economic hinterland? And is there any literary or archaeological evidence to suggest that Antioch was structurally dependent on grain or other food items imported from the territories of neighbouring cities or perhaps even from more distant areas?

Another way of getting to grips with levels of economic integration between various parts of the Roman empire is to study the development of port cities. Did port cities expand following the establishment of Roman rule, and did port cities expand faster than inland cities?

Finally, there is a large body of scholarly literature dealing with causal connections between regional or national urban hierarchical structures and levels and modes of economic integration. It has, for instance, been claimed that urban systems in which the size of a city which occupies a particular 'rank' in the urban hierarchy is inversely proportional to that rank (a distribution commonly known as Zipf's law), reflect the existence of a perfectly integrated (market) economy.[3] Can such theories be fruitfully applied to the cities of the Roman Near East during the second and third centuries C.E.?

It is also possible to examine economic integration using a bottom-up perspective, that is, by looking at the extent to which various segments of the population of the Roman empire participated in a market economy. Again, an obvious way of examining this type of economic integration is to collect evidence of non-local goods finding their way to rural communities or to individual rural households, on the assumption that most of these goods were acquired in the market. Essentially, a very remote village with non-local goods is a good indicator for the depth of market integration. Yet here too the study of urban systems has the potential of making a significant contribution. After reconstructing the urban system of a particular region, we may attribute 'marketing zones' to each of the cities or towns of this region and examine the degree

[2] Keith Hopkins, 'The Political Economy of the Roman Empire*', in Sociological Studies in Roman History, ed. Christopher Kelly, Cambridge Classical Studies (Cambridge: Cambridge University Press, 2017), 517, https://doi.org/10.1017/CBO9781139093552.015.
[3] Steven Brakman et al., 'The Return of Zipf: Towards a Further Understanding of the Rank-Size Distribution', Journal of Regional Science 39, no. 1 (1999): 183–213, https://doi.org/10.1111/1467-9787.00129.

of 'spatial coverage' attained by such urban market centres. As will presently see, this alternative approach to the problem of economic integration is closely associated with a flexible approach to 'urban-ness', in which the economic functions performed by settlements are more important than distinctions between their specific juridical or administrative statuses.

Defining cities

The terms 'city' and 'urbanism' should be considered place- and time-dependent. Attempts to find a definition for 'urban' that encompasses everything from Bronze Age tell sites and Greek *poleis* to Angkor, Teotihuacan and modern-day Mumbai cannot be expected to produce meaningful results. In a recent article, Bisserka Gaydarska and others even call the usefulness of 'city' as an analytical concept into question.[4] Gaydarska is essentially right in pointing out that the terms 'urban' and 'city' are value-laden, inconsistently used or defined and subject to a pick-and-mix approach.[5] Pragmatism, however, is unavoidable to go beyond catch-all definitions, as these do not fit the purpose of studying settlement patterns within a limited region and timeframe.

In this book, multiple criteria will be used to distinguish 'cities' or 'towns' from other types of settlements. The most important of these are administrative or juridical status, the economic functions performed by settlements for the population of the surrounding districts, occupational diversity and settlement size. In practice, settlements which qualify as 'cities' or 'towns' according to one of these criteria also meet some or all of the other criteria, but this is not always the case.[6] If we were to map all settlements qualifying as 'urban' based on administrative status, economic function or population size, our maps would certainly overlap, but they would not be identical.

Settlements that lack indicators of self-governance as described below or are explicitly known to have been subordinate to a city, but still appear to perform a central role of some sort, will be described in this thesis as 'non-urban central places'.[7]

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[4] Bisserka Gaydarska, 'The City Is Dead! Long Live the City!', *Norwegian Archaeological Review* 49, no. 1 (2 January 2016): 40–57, https://doi.org/10.1080/00293652.2016.1164749; Axel Christophersen, 'The City Is Alive – Still! Comment on Bisserka Gaydarska, "The City Is Dead! Long Live the City!"', *Norwegian Archaeological Review* 49, no. 1 (2 January 2016): 58–61, https://doi.org/10.1080/00293652.2016.1167119.

[5] Gaydarska, 'The City Is Dead! Long Live the City!', 54.

[6] City and town are actually both understood here as self-governing settlements, but with towns understood as the smaller settlements between them.

[7] With central place understood as the overarching, abstract definition of human settlements as places performing (economic) services for a surrounding area. See for central place theory in general: Walter Christaller, *Die Zentralen Orte in Süddeutschland: Eine Ökonomisch- Geographische Untersuchung Über Die Gesetzmäßigkeit Der Verbreitung Und Entwicklung Der Siedlungen Mit Städtischen Funktionen*, Repographischer Nachdruck der 1. Auflage, Jena 1933 (Darmstadt: Wissenschaftliche Buchgesellschaft,

Juridical and administrative criteria

In many historical societies we find hierarchical settlement systems in which a relatively small number of political centres controlled administrative territories which were dotted by a much larger number of 'subordinate settlements' and by isolated farms. In the Roman imperial period most administrative tasks, including tax collection, were carried out by town-based magistrates and administrators, whose authority extended throughout the administrative territories belonging to particular cities. This is, essentially, what we consider to be a self-governing city. In many of the western parts of the Roman Empire, there is comparatively good evidence for the officially granted, juridical status of such settlements (essentially *municipia* and *coloniae*).[8] However, for the Roman Near East in many cases we lack such solid evidence of the official juridical status. Surprisingly little use of official Roman statuses can be found in the local, Greek, inscriptions. Only cities with colonial status advertised this proudly. And Pliny apparently used non-official, and at times older, sources.[9] In *The Cities of the Eastern Roman Provinces*, A.H.M. Jones nevertheless managed to identify most of the self-governing communities in this region.[10] This boils down, essentially, to the following types of indicators:

(a) An explicitly known official status from literary, epigraphic or numismatic sources. As stated, usually a *colonia*.
(b) the known presence of urban officials, a city council, etc. Thus we find for instance inscriptions mentioning the boule, bouleutai, agoranomoi, etc.
(c) Attestation of specific 'Greek' rights or privileges. Several places, for instance, advertised their *asylia* or their status of *metropolis.*
(d) Municipal coinage. In the East the minting of local coinages continued well into the Roman period. The privilege to do so is a good indicator that the settlement was officially recognized as a city.
(e) A mention in the later Roman bishoprics lists. A settlement having sent a bishop to one of the councils suggests that by that time, the settlement had become a city. If there are

1968); *Die räumliche Ordnung der Wirtschaft Eine Untersuchg über Standort, Wirtschaftsgebiete u. internat. Handel* (Jena: Fischer, 1940); Masahisa Fujita, Paul Krugman, and Tomoya Mori, 'On the Evolution of Hierarchical Urban Systems', *European Economic Review* 43, no. 2 (15 February 1999): 209–51, https://doi.org/10.1016/S0014-2921(98)00066-X; John Bintliff, 'Going to Market in Antiquity', in *Stuttgarter Kolloquium Zur Historischen Geographie Des Altertums 7 1999: Zu Wasser Und Zu Land. Verkehrswege in Der Antiken Welt'*, by Eckart Olshausen and Holger Sonnabend (Stuttgart, 2002), 209–50.

[8] P. H. A. Houten, 'Civitates Hispaniae: Urbanisation on the Iberian Peninsula during the High Empire' (2018).

[9] A. H. M. Jones, *The Cities of the Eastern Roman Provinces*, 2nd ed.. (Oxford: The Clarendon Press, 1971), 262.

[10] A. H. M. Jones, 'The Cities of the Roman Empire', in *The Roman Economy: Studies in Ancient Economic and Administrative History*, ed. P. A. Brunt (Oxford: Blackwell, 1974), 1–34.

other indicators that the settlement was already of prominence in the period under study, this is a strong hint of urban status.

(f) A mention in Pliny's list, in addition to at least one of the other indicators.

In addition, in most parts of the empire, economic and social elites preferred to live in the settlements performing these administrative functions. Against this background it is not surprising that the self-governing cities of the Roman empire tended to have a wider array of public buildings and a larger number of elite dwellings than those settlements which were 'secondary' or 'subordinate' from an administrative point of view. Of course it is always possible to find exceptions. In an often-quoted passage, Pausanias observes that the Greek *polis* of Panopeus did not have any of the buildings normally associated with 'urban' life, despite being the administrative centre of an 'urban' territory.[11] The explanation is that in earlier periods many undistinguished Greek settlements had been distinct self-organised political wholes despite low ratings in size and urban infrastructure cf. Kirsten's (1956) term 'Dorfstadt'. During the Roman Imperial period, the government's desire to delegate the tasks of day-to-day administration to local communities led to the bestowal of 'urban' status on small settlements, which never took off in terms of monumental architecture or other criteria normally applied to urban settlements. While such exceptions are both numerous and important, they do not contradict the indisputable fact that, during the period covered by this book, investment in public buildings and elite dwellings was heavily concentrated in settlements of superior juridical status.

In this thesis, buildings are grouped as follows: baths and water provision (including aqueducts and nymphaea), commercial buildings (including commercial ports, storage facilities, colonnaded streets, *agorai* and market buildings), elite buildings (elite residences, palaces, elite graves), entertainment (theatres, hippodromes, *odeia* and the like), military buildings (city walls, gates, forts, permanent bases, military ports), religious buildings (temples, sanctuaries, shrines), and finally 'status buildings', most importantly decorative arches including *tetrapylai*.

Of course, the functions of some buildings will have transcended these categories. *Agorai*, here placed here under economic structures, are well known to have had important functions as places of assembly for civic and religious purposes. Note that one finds far fewer *agorai* in the cities of the Roman Near East than in Greece and Asia Minor. Similarly, small theatres are at times identified as *odeia,* intended for music or recitations, or as *bouleuteria*: the place of

[11] Paus., trans. W. H. S. Jones and M. A. Ormerod (Cambridge, MA: Harvard University Press, 1918), 10.4.1; The idea that the presence of public buildings was one of the hallmarks of 'urban-ness' has deep historical roots, but became more prominent in writings of the first two centuries CE. Lomas in Helen Parkins, *Roman Urbanism : Beyond The Consumer City*, 1st ed. (Hoboken: Taylor and Francis, 1997), 24.

assembly for the city council. And while only triumphal arches and *tetrapylai* are assigned to the category of 'status buildings', essentially all buildings set up on a grand scale were meant to display urban wealth and status, be it a lavishly decorated nymphaeum (a simple well would function just as well as a water source) or an amphitheatre (one could also watch a fight in a regular theatre, or even in an open field for that matter). Other buildings simply transcend these categories because they incorporated multiple building types in a single complex. Take for instance the Petra 'Great Temple', which may very well have been a palace or banqueting hall, and was altered in the late first or early second century to include a small theatre-like building as well.[12]

There can be no objective 'minimum set' of buildings that should be present in order to consider a settlement a city. We can count the total number of public buildings and the variety of building types, but we should note that a well-excavated minor town will always offer far more than a major city buried under modern habitation. Thus, we have on the one hand Hippos (also known as Sussita), a small, 8.6 hectare Decapolitan city not far from the Sea of Galilee, with numerous 'urban' buildings, including a colonnaded street and a decorative gate, and on the other, there is Laodicea ad Mare, for which there are suggestions, based on the layout of the city in the 1930s, that the old town stretched over 170 hectares, up to perhaps 220 hectares; but for the rest of its built environment we are dependent on a handful of literary references giving us a smaller and less varied building profile than Hippos.[13] Therefore, such numerical information should be seen as an indicator, hinting at an urban status and differences in settlement complexity, but firmly within its specific context.

Functional approaches to 'urban-ness'

In the Roman Near East, some types of 'urban' buildings are found exclusively in settlements which are known to have been self-governing cities. Examples include colonnaded streets, city walls and decorative arches. Other types of public buildings, such as temples, have also been detected in settlements which were 'subordinate' from a juridical and administrative point of view. Up to a point, the spatial distribution of temples confirms the importance of the distinction between self-governing cities and subordinate settlements. In terms of scale, none of the sanctuaries which have been found outside self-governing cities match the huge temples of

[12] Stephan G. Schmid, 'Foucault and the Nabataeans - or What Space Has to Do with It', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan G. Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 261–65.
[13] Jean Sauvaget, R. P. R. Mouterde, and R. P. B. Mouterde, 'Le Plan de Laodicée-Sur-Mer', *Bulletin d'études Orientales* 4 (1934): 81–116. Even more so, Edessa and Akko stand out as cities with very little information on their built environment, while being major cities in this period.

Heliopolis or Jerusalem; and in terms of numbers of sanctuaries, not a single subordinate agglomeration was a match for the city of Gaza, which counted no fewer than eight temples at the end of the fourth century.[14] Nonetheless the presence of at least certain types of public buildings in settlements which were not self-governing cities highlights an important drawback of approaches based on juridical distinctions.

A close examination of the various economic functions performed by settlements belonging to different juridical categories also suggests that the dichotomy between self-governing cities and secondary or subordinate agglomerations does not do justice to the complexity of the settlement systems of past societies. In a series of important publications dealing with the 'small towns' of early-modern Europe, Peter Clark has shown that in various regions even settlements with fewer than 500 inhabitants often housed up to twenty non-agricultural occupations.[15] In the field of Roman archaeology the past 50 years have seen a huge upsurge in publications dealing with the 'small towns' of Roman Britain.[16] Simultaneously, French archaeologists have drawn attention to the crucial importance of 'secondary agglomerations' as centres of production and trade in Roman Gaul.[17] In recent years this type of research has been extended to other parts of the empire where self-governing cities were thinly spread, such as parts of Roman North Italy.[18]

In the case of Roman Syria, Palestine, Arabia and North Mesopotamia, research into the secondary agglomerations of the Roman Imperial period is still in its infancy, making it difficult to achieve a functional understanding of the regional urban systems of this vast region. The main exceptions are the Decapolis of western Jordan and the vast territory of Antioch-on-the-Orontes.

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[14] *Vita Porph.*, trans. G.F. Hill (Oxford, 1913).

[15] Peter Clark, *Small Towns in Early Modern Europe*, Themes in International Urban History (Cambridge: Cambridge University Press, 1995).

[16] Malcolm Todd, 'The Small Towns of Roman Britain', *Britannia* 1 (1970): 114–30; Richard Reece, 'Town and Country: The End of Roman Britain', *World Archaeology* 12, no. 1 (1980): 77–92; Barry C. Burnham and John Stewart Wacher, *The Small Towns of Roman Britain* (Univ of California Press, 1990); Alexander Smith et al., *The Rural Settlement of Roman Britain* (Society for the Promotion of Roman Studies London, 2016).

[17] See for instance Patrick Le Roux, 'Vicus et Castellum en Lusitanie sous l'empire', 1993 1992, https://gredos.usal.es/handle/10366/73272; Michel Tarpin, 'Vici et agglomérations secondaires : quelques faux problèmes / Vici and secondary agglomerations : some non-issues', *Supplément à la Revue archéologique du centre de la France* 42, no. 1 (2012): 177–82; Florian Baret, 'Les Agglomérations "Secondaires" Gallo-Romaines Dans Le Massif Central : (Cités Des Arvernes, Vellaves, Gabales, Rutenes, Cadurques et Lémovices), 1er Siècle Avant J.-C. - Ve Siècle Après J.-C.' (These de doctorat, Clermont-Ferrand 2, 2015), https://www.theses.fr/2015CLF20003; For an up to date discussion, see Frida Pellegrino, 'The Urbanization of the North-Western Provinces of the Roman Empire: A Juridical and Functional Approach to Town Life in Roman Gaul, Germania Inferior and Britain' (Ph.D., Leiden, Leiden University, 2018).

[18] Marco Maiuro, 'Northern Italy: Urbanization, Demography, Agrarian Output', in *Popolazione e Risorse Nell'Italia Del Nord Dalla Romanizzazione Ai Longobardi*, ed. Elio Lo Cascio and Marco Maiuro (Edipuglia, 2017), 116–24.

In an important survey of the villages of the Decapolis, MacAdam (1983) discussed the epigraphic evidence referring to occupations. Alongside farmers we encounter builders, a sculptor, two goldsmiths, two surgeons, a teacher and a tutor. Interestingly, many former members of urban city-councils (*bouleutai*) also lived in these villages, demonstrating that many members of the political and social elites of this particular region did not live in the central cities.[19] The urban system of the Decapolis will be discussed in Chapter 2.

The only other area of the Roman Near East that provides sufficient evidence to allow an in-depth study of the spatial distribution of secondary settlement over a large area is the territory of Antioch. Between 1932 and 1938 large parts of the territory of this city were surveyed by Robert Braidwood and his team. In the 1950s Georges Tchalenko carried out an ambitious project aimed at mapping and interpreting the standing remains of the numerous villages of the Massif Calcaire in the eastern part of Antioch's administrative hinterland. Finally, large amounts of new information relating to the settlement patterns of the region were revealed by the Amuq Valley Regional Projects carried out by a large team of American, British and Turkish archaeologists in the 1990s. The regional settlement patterns that emerge from these high-quality publications will be discussed in Chapter 3.

Quantitative approaches to Roman urbanism

Besides juridical status and economic function, we are left with population size as the final major criterion to qualify a settlement as 'urban'. This element is also critical for defining regional urban hierarchies.

In an influential article published in 1938, the American sociologist Louis Wirth identified permanence, settlement size, population size and density and a heterogenous demographic make-up as essential factors in making up a city[20], but he went on to emphasize that 'these criteria must be seen as relative to the general cultural context in which cities arise and exist and are sociologically relevant only in so far as they operate as conditional factors in social life.'[21]

In his ambitious monograph on the history of urbanism in the pre-modern and contemporary world, Paul Bairoch argued that the only criterion to measure 'urbanism' that is applicable to all cities in all periods is population size. He suggests that when dealing with pre-modern societies those settlements which had 5,000 or more inhabitants may reasonably be regarded as 'urban',

[19] Henry Mac Adam, 'Epigraphy and Village Life in Southern Syria during the Roman and Early Byzantine Periods', *Berytus: Archaeological Studies*, no. 31 (1983): 103–16.
[20] Louis Wirth, 'Urbanism as a Way of Life', *American Journal of Sociology* 44, no. 1 (1938): 1–24.
[21] Wirth, 6.

although he hastens to add that applying this threshold uncritically to pre-modern or early-modern societies is bound to result in a misleading view of 'urbanism' in many historical periods.[22]

In a recent article Jose Lobo, Louis Bettencourt, Michael Smith and Scott Ortman define a city as 'a network of social interaction embedded in space'.[23] This approach has the potential of becoming a valuable tool in comparing aggregate, average urbanism between different periods. Nonetheless some problems remain. If cities are essentially nodes in 'networks of social interaction', attempts to draw the boundaries of a particular city can easily be called into question, especially in the case of the huge metropolitan areas of the modern world. According to Marchetti and Pumain the 'space around built-up infrastructure (homes, roads, workplaces, shops), which can be traversed within about a day's movement effort' may be regarded as representing the maximum size of a city.[24]

Even in the Roman Imperial period it was not always easy to determine the external boundaries of particular cities. In the early first century AD the city of Rome consisted of a walled nucleus covering c. 426 hectares and numerous suburbs covering a much larger area. According to Dionysius of Halicarnassus (AT IV.13): "If anyone wishes to estimate the size of Rome by looking at these suburbs he will necessarily be misled for want of a definite clue by which to determine up to what point it is still the city and where it ceases to be the city; so closely is the city connected with the country, giving the beholder the impression of a city stretching out indefinitely." In Roman Syria the city of Antioch also consisted of walled nucleus and extensive suburbs, making it difficult to establish the boundaries of the built-up area (Chapter 4). Many other cities of the Roman Near East were protected by town walls and did not have extensive suburbs. It is often assumed that the walled areas of these cities were entirely built up, but there is some evidence to suggest that this was not always the case. In the case of unwalled cities and towns the approximate extent of the built-up area can often be estimated with a reasonable degree of confidence, but in at least some cases the archaeological evidence is insufficient. In this context it must be remembered that archaeological research has often targeted the most important settlements, leaving us with relatively little information on smaller cities and towns.

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[22] Paul Bairoch, *Cities and Economic Development: From the Dawn of History to the Present* (University of Chicago Press, 1991), 217.
[23] Jose Lobo et al., 'Settlement Scaling Theory: Bridging the Study of Ancient and Contemporary Urban Systems', *Urban Studies* 57, no. 4 (2020): 5.
[24] C. Marchetti, 'Anthropological Invariants in Travel Behavior', *Technological Forecasting and Social Change* 47, no. 1 (September 1994): 75–88, https://doi.org/10.1016/0040-1625(94)90041-8; Denise Pumain, 'Pour une théorie évolutive des villes', *L'Espace géographique* 26, no. 2 (1997): 119–34, https://doi.org/10.3406/spgeo.1997.1063; Denise Pumain, 'Settlement Systems in the Evolution', *Geografiska Annaler. Series B, Human Geography* 82, no. 2 (2000): 73–87.

Another significant problem concerns the relationship between settlement size and the size of urban populations. Attempts to define cities using quantitative criteria tend to focus on demographic thresholds which have to be met in order for settlements to qualify as 'urban'. It is also possible to discern a general consensus that the thresholds for 'urban-ness' should be set lower for the cities of the distant past than for the contemporary world. However, the surviving written sources relating to the Roman empire contain very few clues which can be used as a basis for reliable urban population estimates. On his tombstone a soldier who died in the early first century C.E. reported that "I also on the order of Quirinius took the census at the *civitas* of Apamea with 117,000 people (or 'men'?) of citizen status". The expression "people of citizen status" is usually taken as referring to the entire free population, including women and children. Regardless of the merits of this reading, the figure of 117,000 must refer to the number of "people of citizen status" living in the entire *civitas* rather than to the number of town-dwellers. Since the phrase "people of citizen status" does not cover non-citizens, slaves and nomads, the total population living in Apamea's administrative territory must have exceed 117,000 by a considerable margin. Archaeologically this piece of information can be compared to the size of the area enclosed by the city walls of Apamea which has been estimated as *c*. 250 hectares. If average urban population density stood at 200 inhabitants per hectare and if the total population was as high as 200,000, approximately one quarter of the population would have lived in the central city. This outcome does not look implausible, but it remains the case that the urban population density and the size of the total population of Apamea and its territory are entirely conjectural.[25] In any case we are dealing with a snapshot which need not be valid for the late second or early third century C.E., nor for other cities.

The lack of reliable population figures creates some further methodological difficulties. As noted at the beginning of this chapter, one of the aims of this book is to contribute to debates regarding levels of economic integration in the Roman empire by trying to establish if all, or most, cities within the research area could be sustained by the food supplied by their own administrative territories. Having reliable population estimates for the largest cities of the various regions would certainly facilitate the realisation of this aim. In the absence of such estimates, we will have to work with flexible estimates, obtained by combining estimates for the size of the built-up urban area with hypothetical urban population density figures. Similarly, it will be impossible for us to assess levels of economic integration by drawing rank-size graphs based on population figures. Instead, we will have make do with rank-size graphs showing hierarchical relationships between cities with large built-up areas and smaller cities occupying a lower number of

[25] And, in light of what follows, these estimates are on the high side. In addition, we do not know if the entire space enclosed by the town walls was occupied by domestic and/or public buildings.

hectares. Since population densities are unlikely to have been uniform across the settlement spectrum, we can be certain that the hierarchical relationships revealed by our graphs are less than 100 per cent accurate. If reliable population figures were available, they would probably show urban population densities to have been higher in the largest cities. In other words, the urban hierarchies which existed in our research area were probably steeper than shown by our graphs. In the absence of detailed archaeological information about building densities, building heights and numbers of rooms per domestic unit, it will be difficult to obtain a more detailed picture of settlement hierarchies in the Roman Near East, and even a spectacular increase in the amount of information regarding urban dwellings or entire urban quarters will only reduce uncertainties without eliminating them.

Some observations in existing publications regarding the urban systems of the Roman Near East

The foundations for a comprehensive approach to urbanism in the Roman Near East were laid in A.H.M. Jones's pioneering study *The Cities of the Eastern Roman Provinces*, the first edition of which appeared in 1937. The Appendices concluding this superb monograph list 85 settlements which certainly had the juridical status of 'city' around 250 C.E. If three settlements which may have been promoted to city status before 250 C.E. are added to this list, this basic figure rises to 88.[26] If the ten central towns or villages of the toparchies of Syria Palaestina and Syria Phoenice are also accepted as 'cities', we end up with a total of 98 self-governing urban units in our research area. During the fifty years which followed the appearance of the second edition of this seminal study, in 1971, some of the identifications proposed by Jones have been challenged, and so have some of the dates at which he thought various settlements were promoted to urban status. It must, however, be emphasized that none of the revisions that have been proposed undermine Jones's overall reconstruction of the urban systems of the eastern provinces of the empire.

In his 1937 monograph Jones made some acute observations about the relative importance of the urban centres of particular provinces. Thus Caesarea, Eleutheropolis, Neapolis, Gaza and Ascalon are singled out as the most important cities of the late-Roman province of Palaestina I,[27] whereas Emmaus-Nicopolis is described as small.[28] Jones did not, however, make any attempt, to estimate the sizes of the walled areas, or the inhabited quarters, of the self-governing cities of

[26] Maurice Sartre, *D'Alexandre à Zénobie : Histoire Du Levant Antique : IVe Siècle Avant J.-C.-IIIe Siècle Après J.-C* (Paris: Fayard, 2001), 167 suggests that Elusa, Mapsis and Birosaba (all in the province of Arabia) might have been promoted to city status in the second century CE. .
[27] Jones, *The Cities of the Eastern Roman Provinces*, 279.
[28] Jones, *The Cities of the Eastern Roman Provinces*.

the Roman Near East. The first scholar to attempt such a quantitative approach seems to have been Josiah Cox Russell. In an article which appeared in 1958, he provides estimates for the size of the walled or built-up areas of eleven important cities of Roman Syria, including Antioch, Apamea, Tyre, Sidon and Jerusalem.[29] While some of Russell's figures are wildly inaccurate, such as the estimate of 1,750-2,100 hectares for the area enclosed by the walls of Antioch-on-the-Orontes, most of his estimates are at least of the right order of magnitude. On any view, his attempt to put some flesh on vague assertions regarding the importance of various cities of the Roman empire can only be described as ground-breaking.

During the 65 years which have passed since the publication of Russell's survey, our understanding of the quantitative aspects of urbanism in the eastern provinces of the Roman empire has been hugely advanced as a result of countless archaeological campaigns carried out in Syria, Lebanon, Israel, Jordan and Iraq. Since estimates for the sizes of many Roman cities which were situated within this vast area have been published in large numbers of excavation reports or articles dealing with individual cities, it is by no means easy to obtain a synthetic view of urbanism in the Roman Near East. In the case of Roman Palestine, the Israeli archaeologist Magen Broshi provided estimates for six cities or towns which were located in the Negev and 26 further cities which were situated in the modern state of Israel, the Gaza strip or on the West Bank.[30] His main chronological focus was the late Roman and early Byzantine period, and not all of the 32 cities and towns covered by his survey were autonomous urban units in the mid-third century C.E., but that does not detract from the immense value of this ambitious overview.

Fewer attempts have been made to collect area estimates for the Roman cities of present-day Lebanon, Syria and northern Iraq. Grainger (1990) surveyed some of the evidence for the size of towns in Syria founded by the Seleucid kings, but did not always trace the expansion of towns in later times. Some further data are found in Maurice Sartre's book on the Roman Near East (Sartre 2005) and in Getzel Cohen's book on the Hellenistic settlements in Syria, the Red Sea Basin and North Africa (Cohen 2006).

In a recent monograph on the urban geography of the Roman empire, Jack Hanson has tried to achieve a comprehensive reconstruction of urbanism in the Roman Near East by combining Broshi's estimates with those of Cohen.[31] The most important novelty of his discussion is the inclusion of lists of public buildings. Unfortunately, Hanson's decision to rely on existing

[29] J. C. Russell, 'Late Ancient and Medieval Population', *Transactions of the American Philosophical Society* 48, no. 3 (1958): 82, https://doi.org/10.2307/1005708.
[30] Magen Broshi, 'The Population of Western Palestine in the Roman-Byzantine Period', *Bulletin of the American Schools of Oriental Research*, no. 236 (1 October 1979): 1–10.
[31] Between them, Broshi and Cohen provide estimates for 46 cities of the Roman Near East, corresponding to about half of the total number of official cities. J. W. Hanson, *An Urban Geography of the Roman World, 100 BC to AD 300* (Oxford, United Kingdom: Archaeopress, 2016).

synthetic studies rather than on publications dealing with individual cities means that some of his estimates take no account of recent discoveries. For example, Hanson's estimate for the size of the area occupied by Roman Jerusalem is 186 hectares (Hanson 2016, 774). This figure recalls Avi-Yonah's estimate of 180 hectares for the size of the area enclosed by the 'Third Wall' of early-imperial Jerusalem (Avi-Yonah, 'The third and second walls of Jerusalem', p. 121). There are, however, two problems with this high figure. The first of these is that Avi-Yonah's estimate depends on the identification of the 'Third Wall' with the so-called Sukenik-Mayer wall. In a recent article Ronny Reich has argued that the 'Third Wall' coincided with the northern section of the Ottoman wall (Reich, 'A note on the population size of Jerusalem in the Second Temple Period,' RB 121-122 (2014), 298-305). If this revisionist view is accepted, the city of Jerusalem would have covered no more than 103.5 hectares in the first half of the first century C.E. More importantly, however, Hanson fails to provide a separate estimate for the period following the establishment of the Roman colony of Aelia Capitolina by Hadrian. According to the most recent estimates, the size of the area occupied by Aelia Capitolina did not exceed 75 hectares. This area included the areas occupied by the Temple Mount (14 hectares) and the camp of the Tenth Legion. It follows from these figures that Aelia Capitolina was a modestly-sized city.

The lesson to be learned is that the only way to arrive at a more or less reliable reconstruction of the quantitative dimensions of urbanism in the provinces of Osrhoene, Coele Syria, Syria Phoenice, Syria Palaestina and Arabia is to go through as many publications as possible, dealing with each individual city of our vast research area, including all publications which have appeared after the publication of Broshi's and Cohen's surveys.

Defining the study area

Cities can only exist where natural conditions allow it, or where people have had the possibility to ameliorate these conditions. In large parts of the Roman Empire, the environment posed relatively few hindrances to the existence of urban communities, with sufficient access to buildable space, cultivable land and/or other sources of food, drinking water and building materials. In the Near East, however, such environmental factors have always played a more limiting role in the viability of cities. After a general outline of the geography of the Near East, the focus in this section will shift to the agricultural potential of the region, and therefore to

Figure 1 Study area

water resources, the most critical environmental factor in this area.[32] As such, this section will give a brief overview of the core areas of the region that could support urban communities, before turning to the marginal zones where cities existed only with the aid of specific coping strategies, or not at all.

The study area (Figure 1) encompasses those parts of what is generally called the Middle East that were or had been under Roman control throughout the second and third centuries C.E., not including the Roman provinces of Egypt, Asia Minor (more or less covering the Anatolian Plateau) and Commagene, the area between the south-eastern Taurus range (Güneydoğu Toroslar) and the Euphrates River. In the southwest, the study region ends with the Sinai desert, up to the Suez Gulf and the eastern edge of the Nile Delta. The north-eastern limit of the region is formed by the Amanos Mountains (Nur Dağları) and the Euphrates River at the height of Zeugma. South of Greater Armenia, despite Trajan's campaigns, there was no lasting Roman influence beyond the Tigris. Between the rivers the Roman sphere of influence only extended over the Jazīrah, the northern part of Mesopotamia, after the campaigns by Lucius Verus. This thesis follows the provincial organisation under the Severans in the late second century and early third century, including Osrhoene. Hence, Syria is divided into Syria Coele and Syria Phoenice. Judea was known as Syria Palaestina from 135 C.E. onwards.

In the southeast, the extent of Roman influence is less clear, as is more often the case with desert frontiers. While it appears that a Roman military base was established as far into the Red Sea as the Farasan Islands, given the focus on urban-like settlements,[33] this study takes Hegra (Madā'in Ṣāliḥ in the Ḥijāz) as its south-eastern boundary.

[32] Eugen Wirth, *Syrien: eine geographische Landeskunde*, Wissenschaftliche Länderkunden ; Bd. 4/5. 820826057 (Darmstadt: Wissenschaftliche Buchgesellschaft, 1971), 88–93.
[33] Michael Alexander Speidel, 'Ausserhalb des Reiches? Zu neuen lateinischen Inschriften aus Saudi-Arabien und zur Ausdehnung der römischen Herrschaft am Roten Meer', in *Heer und Herrschaft im Römischen Reich der Hohen Kaiserzeit*, ed. Michael Alexander Speidel (Stuttgart, 2009), 633–49; Michael Alexander Speidel, ''Almaqah in Rom? Epigraphisches zu den römisch-sabäischen Beziehungen in der Hohen Kaiserzeit', *Zeitschrift für Papyrologie und Epigraphik* 194 (2015): 241–58.

Physical geography

The area under study is a complex region covering several continental plate boundaries. A very marked feature of the region is the Levant Rift (or Dead Sea Fault) system between the African and Arabian Plates, continuing from the Red Sea Rift in the south. The most distinct results of this are the Dead Sea and the Jordan Rift Valley, with the lowest point at 790 m below sea level in the Dead Sea basin.[34] The southern part of the Levantine Rift also includes the Eilat (or ʿAqaba) and ʿAraba rifts and the Beit She'an, Kinneret and Hula basins.[35] Continuing up to the Eastern Anatolian Fault – which divides the Anatolian Plate from the African and Arabian Plates – the Levant Rift also includes the Lebanese Splay Fault and the El Gharb-Kara Su Rift in the north, also known as the Orontes or El Ghab Rift.[36]

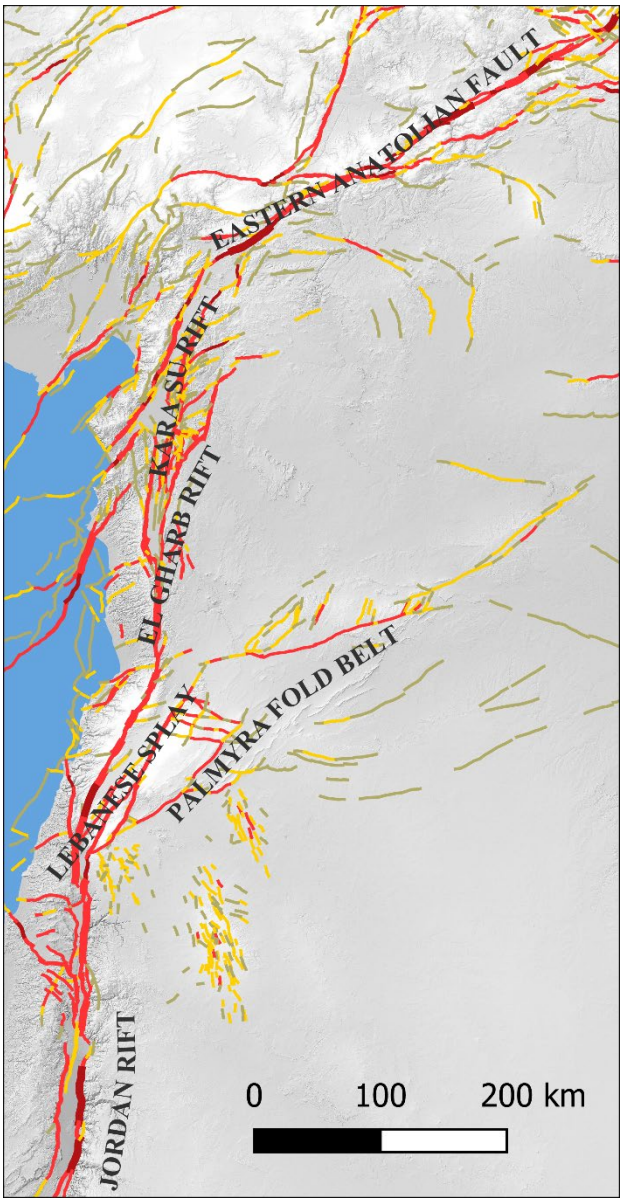

Figure 2 Main structural elements along the Levant Rift system (after Mart, Ryan and Lunina 2005)

The rift valleys and basins are flanked by a series of mountainous features (Figure 3 and Figure 4): the Judean highlands west of the Dead Sea, and on the eastern side the Northern and Southern Jordan Highlands and the Ḥawrān, including the Golan Heights and the Jebel Arab or Jebel ed-Druze. Along the El Gharb Rift lie the Syrian Coastal

[34] Peter Beaumont, Gerald H. Blake, and John Malcolm Wagstaff, *The Middle East : A Geographical Study* (London etc: Wiley, 1976), 407; Yossi Mart, William B. F. Ryan, and Oxana V. Lunina, 'Review of the Tectonics of the Levant Rift System: The Structural Significance of Oblique Continental Breakup', *Tectonophysics* 395, no. 3–4 (20 January 2005): 213, https://doi.org/10.1016/j.tecto.2004.09.007.
[35] Mart, Ryan, and Lunina, 'Review of the Tectonics of the Levant Rift System', 213–15.
[36] Mart, Ryan, and Lunina, 213.

Mountain Range, in antiquity known as Bargylus[37] (also known as Ansariyeh or Jibāl an-Nuṣayriyah) and on the opposite side the mountains of the Limestone Massif, including Jabal az-Zāwiya and the Ḥārim mountains: al ʿAlā, al Wasṭānī, Dwēli and Bārīshā.[38] It becomes somewhat more complicated around the Amik Basin (the plain of Antioch or ʿAmuq plain) where the El Gharb Rift meets the Kara Su Rift, running from the Antakya-. Here the Jabal al-ʾAqraʿ (Mount Saphon or Casius) lies in the south between the Antakya-Samandag Corridor and the El Gharb Rift. The Kürd Dağı and Jabal Semʻān lie to the east, and the aforementioned Amanos Mountains (Nur Dağları) lie to the west, continuing along the Kara Su valley up to the Eastern Anatolian Fault.[39] In the middle, the faults of the Lebanese Splay form the Lebanon and Anti-Lebanon Mountains, with several valleys in between, the largest being the Beqaa valley.[40] East of this, running northeast from Jabal Qāsiyūn at Damascus, the Palmyra Fold Belt forms the Palmyredes Chain (or 'third Kalamun ridge').[41] From Laodicea south to Acco, only a relatively narrow coastal strip lies between the Mediterranean and the highlands on the western flank of the Rift Valley.

As these are active faults, the region experiences a high level of seismic activity.[42] Severe earthquakes have been known throughout human history in the region, and in a number of cases the destruction and subsequent abandonment of settlements has been linked to seismic events.[43] A particularly destructive earthquake took place during the study period, apparently destroying large parts of the cities of northern Syria, including Antioch and Apamea. Another heavy earthquake hit in 363 C.E., with several more following.[44]

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[37] Richard J. A. Talbert, *Barrington Atlas of the Greek and Roman World. Map-by-Map Directory* (Princeton, NJ etc: Princeton University Press, 2000), 1044.
[38] Mart, Ryan, and Lunina, 'Review of the Tectonics of the Levant Rift System', 215; Carlos E. Cordova, *Millennial Landscape Change in Jordan: Geoarchaeology and Cultural Ecology* (University of Arizona Press, 2007), 63–64.
[39] Margreet L. Steiner and Ann E. Killebrew, *The Oxford Handbook of the Archaeology of the Levant: C. 8000-332 BCE* (OUP Oxford, 2014), 11–12; Volkan Karabacak and Erhan Altunel, 'Evolution of the Northern Dead Sea Fault Zone in Southern Turkey', *Journal of Geodynamics*, SI : Tethyan Evolution and Active Tectonics in Anatolia dedicated in honour of Prof. Dr. Ali Koçyiğit's retirement, 65 (April 2013): 284–86, https://doi.org/10.1016/j.jog.2012.04.012.
[40] Mart, Ryan, and Lunina, 'Review of the Tectonics of the Levant Rift System', 221–22.
[41] Kenneth Mason and J. W. Crowfoot, *Syria : April 1943*, Geographical Handbook Series ; B.R. 513 852813198 (Oxford: Naval Intelligence Division, 1943), 23–25.
[42] Beaumont, Blake, and Wagstaff, *The Middle East*, 25–26.
[43] M. R. Sbeinati, R. Darawcheh, and M. Mouty, 'The Historical Earthquakes of Syria: An Analysis of Large and Moderate Earthquakes from 1365 BC to 1900 AD', *Annals of Geophysics*, 2005; Mustapha Meghraoui et al., 'Evidence for 830 Years of Seismic Quiescence from Palaeoseismology, Archaeoseismology and Historical Seismicity along the Dead Sea Fault in Syria', *Earth and Planetary Science Letters* 210, no. 1–2 (15 May 2003): 35–52, https://doi.org/10.1016/S0012-821X(03)00144-4.
[44] Kenneth W. Russell, 'The Earthquake Chronology of Palestine and Northwest Arabia from the 2nd Through the Mid-8th Century A. D.', *Bulletin of the American Schools of Oriental Research*, no. 260 (1985): 37–59, https://doi.org/10.2307/1356863; Sbeinati, Darawcheh, and Mouty, 'The Historical Earthquakes of Syria: An Analysis of Large and Moderate Earthquakes from 1365 BC to 1900 AD'.

There are relatively few perennial rivers in the Near East (Figure 3 and Figure 4). Their value for the region lies not just in their being a source of fresh water, but also in their function as communication pathways. While only very few Near Eastern rivers are navigable, their valleys often function as routes for communication and troop movement overland. Of these rivers, the three best known are the Euphrates, Tigris and Jordan. Both Euphrates and Tigris originate in north-eastern Turkey, flowing separately through the plains to the southeast before merging as

Figure 3 Rivers and mountain ranges Northern Levant

the Shatt al-Arab and emptying into the Persian Gulf. The land in between the rivers is known as Mesopotamia. On the western bank of the Euphrates, the only perennial tributary of this river is the Sajur, flowing from the surroundings of Gaziantep. On the eastern bank, in the Jazīrah, the two tributaries are the Balikh and the al-Khābūr (Balissus and Chaboras).[45] A large number of wadis – intermittent seasonal streams – cross the Jazīrah and empty either into the major rivers as well, or, like the Wadi Tharthar and Wadi Ajij originating in the Sinjar mountains, empty into salt depressions.[46]

The Euphrates is only navigable downstream. The Shatt al-Arab and the Tigris are navigable up to Baghdad, but between Baghdad and Mosul only between December and May with boats of limited draught. The rest of the year this part, as well as the rest of the river beyond Mosul throughout the whole year, is only navigable downstream in rafts, with the upper stretch being particularly difficult to navigate.[47]

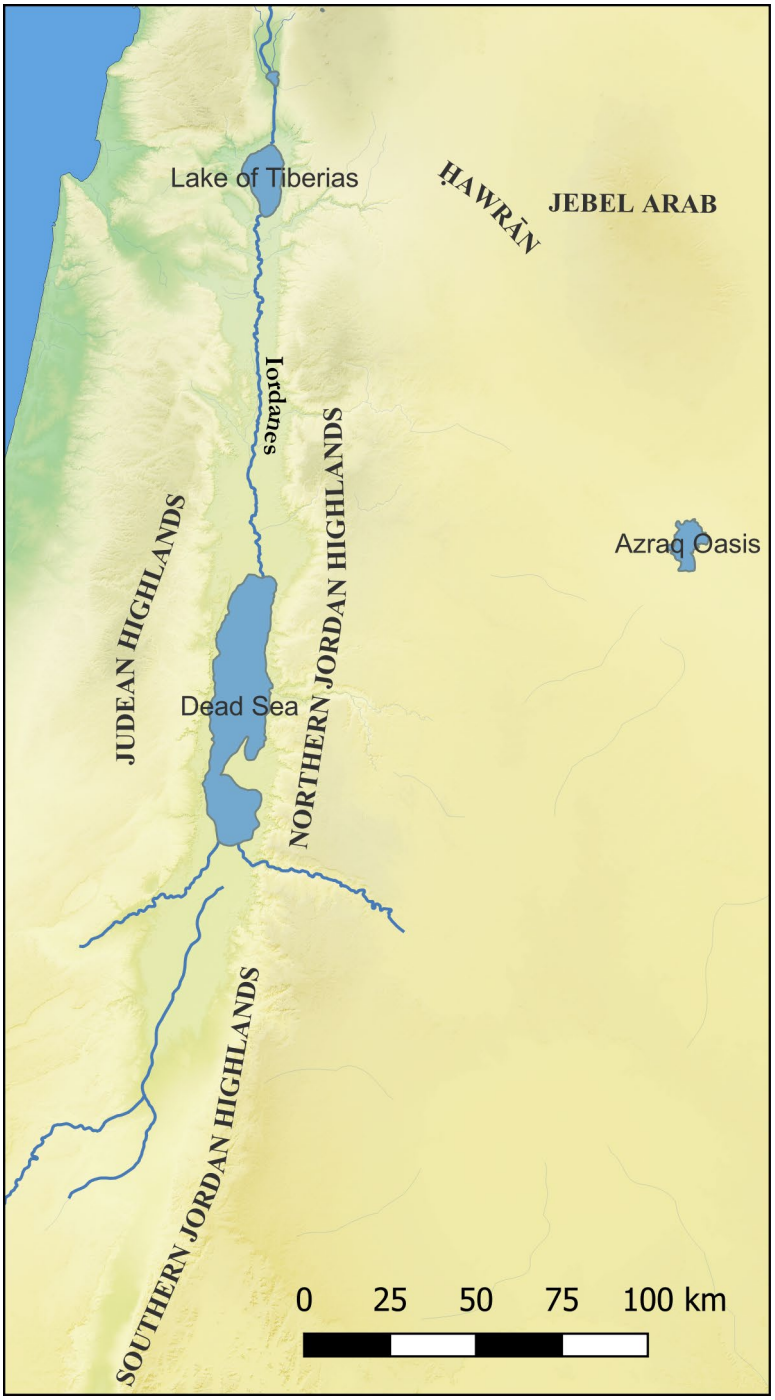

Figure 4 Geography southern Levant

[45] Mason and Crowfoot, *Syria*, 34–35.
[46] Kenneth Mason, *Iraq and the Persian Gulf*, Geographical Handbook Series 852813198 (London: Naval Intelligence Division, 1944), 77–78, 81.
[47] Mason and Crowfoot, *Syria*, 36; Mason, *Iraq and the Persian Gulf*, 41, 559.

Figure 5 Detail of Chrysorroas and Eleutheros

To the west, the Nahr ed Dahab (generally identified as the ancient Dardas) runs south from Turkey to empty in the Sabkhat al-Jabbūl salt lake, as do several wadis. Further west the Quwayq (or Queiq, in antiquity the Belus) rises in the Kürd Dağı and runs south, east of the Jabal Sem'ān and past ancient Chalcis and Aleppo, to drain in the Madkh (Möfti Göl) salt marshes. Like the Jabbūl Lake, these were used in antiquity for salt extraction.[48]

[48] Mason and Crowfoot, *Syria*, 25, 49; Kevin Butcher, *Roman Syria and the Near East* (J. Paul Getty Museum, 2004), 179.

Flowing from the valley between the Lebanon and Anti-Lebanon, the Nahr al ʿĀṣī, the ancient Orontes, runs northwards through the aforementioned northern stretch of the Levant Rift Valley to the plain of Antioch, where it is joined by the Kara Su and Afrin rivers (Labotas and Oinoparas) flowing in from the north. At that point, the river makes a bend towards the southwest, passing Antioch and emptying into the Mediterranean. In antiquity it was navigable at least up to Antioch, and quite probably further upstream as well, aided by canals dug in the Roman period.[49]

The coastal plains from Laodicea all the way south to Azotos (Lakhish) have a large number of smaller rivers emptying into the Mediterranean, both perennial and seasonal, springing from the Bargylus and Lebanon ranges or the central highlands. Of these, the northern and southern al-Kebir rivers are of note, as their valleys form the main passageways around the Bargylus. The valley of the northern Nahr al-Kebir (ancient Chrysorroas, Figure 5) opens the route from Latakia to Aleppo, the southern Nahr al-Kebir (the Eleutheros) passes through the Homs Gap and opens the route from Tripoli to Homs; it runs through the largest coastal plain along the northern coast.[50] Next, the Nahr al-Līṭānī (ancient Litas)[51] rises like the Orontes in the Beqaa valley close to Baalbek, and flows south towards Tyre.

The Jordan is the major river of the southern Levant, running south through the Jordan Rift Valley and emptying into the Dead Sea. It has several tributaries, the larger ones in the north being the Hasbani and Banias rivers, and further south the Zarqa (Iabakchos), rising near Philadelphia, and the Yarmuk (Hieromyces), fed by several wadis throughout the Hauran.[52] Further south, the Wadi Mujib (Arnon) and Wadi Hasa cut through and divide the Jordan highlands to empty into the Dead Sea.

Of final note are the oases in the southeast. The Ghuta Oasis at Damascus is fed by the Barada, ancient Chrysoroas, and the A'waj (Pharphar), providing a fertile and well-watered agricultural area for this city.[53] The Al-Jafr and Azraq Oases lie in the centre of large drainage basins in the desert, and while the water provided by them may not have supported significant settlements, they were natural watering stops for travel through the region. The Azraq Oasis lay at the head of the Wadi Sirhan, the route towards the next great oasis to the southeast. It was apparently

[49] Jesse J. Casana, 'From Alalakh to Antioch: Settlement, Land Use, and Environmental Change in the Amuq Valley of Southern Turkey' (Ph.D., United States -- Illinois, The University of Chicago, 2003), 299.
[50] Mason and Crowfoot, *Syria*, 14–19, 63.
[51] Talbert, *Barrington Atlas of the Greek and Roman World. Map-by-Map Directory*, 1064.
[52] Talbert, 1062.
[53] Talbert, 1060, 1065; Butcher, *Roman Syria and the Near East*, 13.

considered of enough importance that under the Severans a permanent military fort was built at this oasis, connected by a road with the city of Bostra.[54]

Rainfall (Figure 6)

Unless constantly and reliably provided with foodstuffs from more distant areas, cities can only exist where their own hinterland offers the necessary provisions. The 'fertile crescent' is an apt description of the limited zone in the Middle East where agriculture is possible, bordering the uncultivable steppes and deserts of the Arabian Plateau. As stated, water is the most limiting factor in the Near East. Rainfed cultivation of wheat requires a minimum of 250 mm of rainfall per year for the crops to survive, barley needs 200 mm, and olive tree cultivation 300 to 500 mm per year.[55] While there are considerable issues estimating the carrying capacity of a landscape based on crop yields[56], it is obvious that where there is no yield at all, no significant population can be sustained without outside influences.

Figure 6 shows the relevant isohyets of the mean annual rainfall over 50 years from 1950 to 2000 based on the WorldClim dataset.[57] Clearly, large parts of the region can be classified as arid zones, with rainfall below 150 mm per year. Moisture-laden western winds blow in from the Mediterranean, but a significant portion of their rains fall on the western slopes of the coastal ranges and the Lebanon and Anti-Lebanon mountains. The western areas thus receive considerable amounts of rain, with over 1000 mm per year in the northwest around Antioch. At some points, the contrast is very sharp: for instance, the Jordan Valley and the Dead Sea lie in the rain-shadow of the Judean highlands and see only very little precipitation.[58]

[54] David Kennedy, *The Roman Army in Jordan*, 2nd rev. ed.. (London: Council for British Research in the Levant, 2004), 31, 35, 50, 56–78, 174.
[55] Cordova, *Millennial Landscape Change in Jordan*, 64–67; Wirth, *Syrien*, 92.
[56] As will be discussed in Chapter 3.
[57] See Robert J. Hijmans et al., 'Very High Resolution Interpolated Climate Surfaces for Global Land Areas', *International Journal of Climatology* 25, no. 15 (1 December 2005): 1965–78, https://doi.org/10.1002/joc.1276.
[58] Werner Nützel, *Einführung in die Geo-Archäologie des Vorderen Orients* (Wiesbaden: Reichert, 2004).

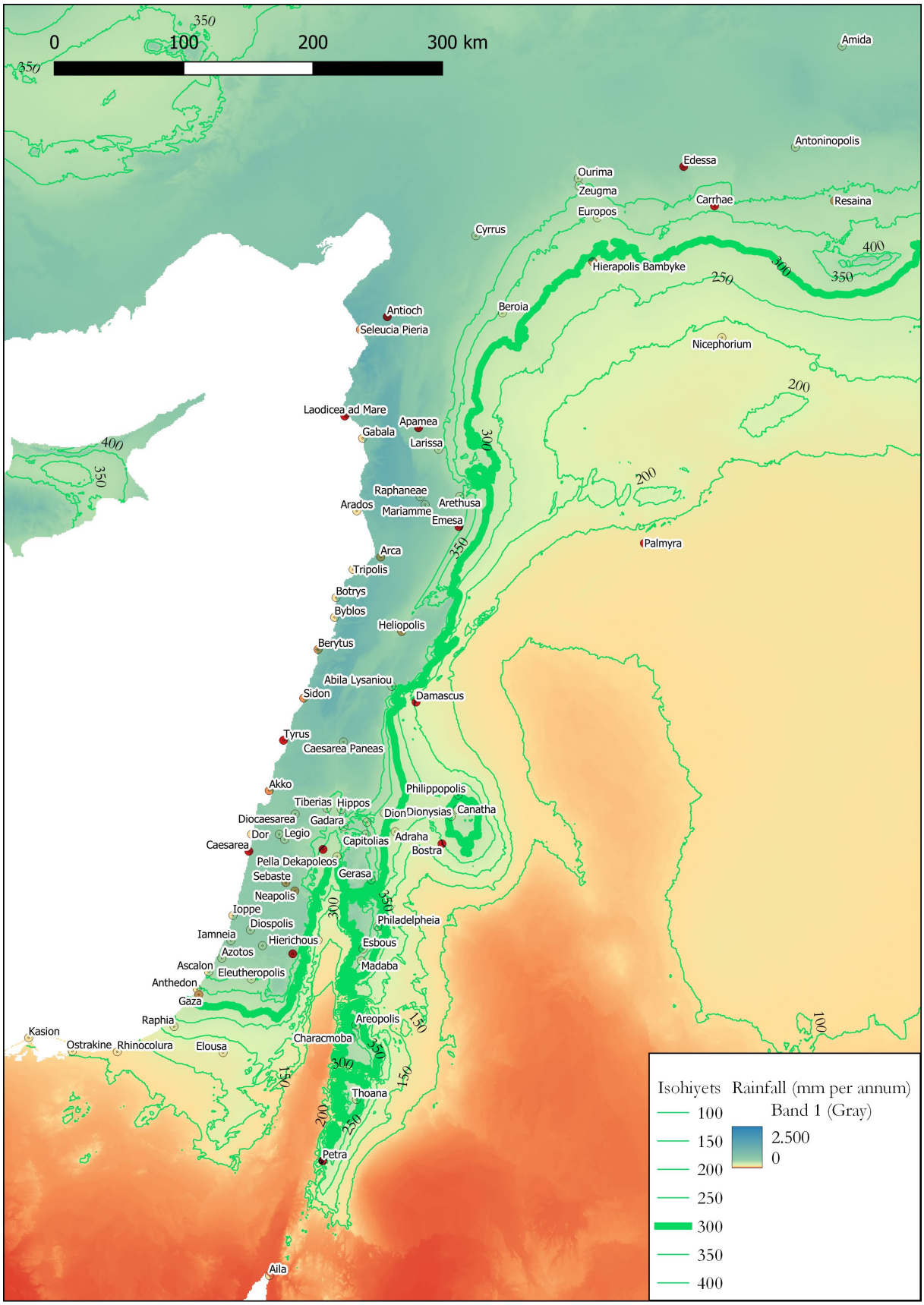

Figure 6 Rainfall in the Levant

However, several other factors come into play. Both in the wetter zone and in the drier eastern parts, over 70% of all precipitation is limited to the winter months, December to February. It is therefore also important to what degree the soil can retain water.[59] Secondly, high temperatures cause high levels of potential evapotranspiration, further exacerbating the already limited rainfall. Thirdly, the levels of rainfall are highly variable between different years, with the impact of inter-annual variation most pronounced in the drier areas, as the threshold of potential evaporation remains similar. As Wirth described for Syria, in the dry years of 1957 to 1961 the minimum rainfall border for wheat cultivation shifted significantly, coinciding more closely with the 400 mm long-term average isohyet. This dry period has been surpassed in duration as well as aridity in the recent drought from 1998 to 2012, described as the worst in the past 900 years.[60] In broad lines, the 400 mm isohyet gives the border of reliable rainfall for agriculture; beyond it lies what Nützel calls a 'theoretical no-man's land'.[61] In practice, however, and this was indicated by Wirth as well, agriculture is also practiced in areas with as low a mean annual rainfall as 150 mm per annum, with various coping strategies for dry years.[62] Looking at the Global Historical Climate Network (GHCN) data, at most weather stations deviation from the mean can be as much as 50% between 1950 and 2000.[63]

Three main zones can be defined in the region. The first is the area with precipitation over 400 mm per annum, allowing for reliable agriculture even in dry years. This covers much of the zone west of the Rift Valley, north of Be'er Sheva. At the northern end of the Rift Valley, it stretches east along the Taurus towards Mesopotamia. In the Jezirah it covers the northern reaches of the Balikh and Khabur valleys. East of the Rift Valley, this includes the Limestone Plateaux in Syria, and the Transjordanian Mediterranean Belt, as Cordova calls it, essentially the northern highlands and highland plateaux of Jordan.[64]

Second is the area with between 400 and 250 mm annual rainfall, where in periods of a positive water balance, rainfed agriculture can be practiced unaided, but measures must be taken to ensure a supply of food in dry years. This covers the southern Jordanian highlands, the Hauran or Decapolis region, and the middle reaches of the Khabur and Balikh valleys. More so than in the zone of reliable rainfall, settlements are bound to locations of alternative water sources.

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[59] Nützel, 4; Wirth, *Syrien*, 118.
[60] Benjamin I Cook et al., 'Spatiotemporal Drought Variability in the Mediterranean over the Last 900 Years', *Journal of Geophysical Research: Atmospheres*, 2016, n/a-n/a, https://doi.org/10.1002/2015JD023929.
[61] Nützel, *Einführung in die Geo-Archäologie des Vorderen Orients*, 4–7.
[62] Wirth, *Syrien*, 93; See also Tony J. Wilkinson et al., 'The Structure and Dynamics of Dry-Farming States in Upper Mesopotamia [and Comments and Reply]', *Current Anthropology* 35, no. 5 (1994): especially 499-501.
[63] 'World Bank Climate Variability Tool', accessed 1 October 2022, http://iridl.ldeo.columbia.edu/maproom/Global/World_Bank/Climate_Variability/index.html.
[64] Cordova, *Millennial Landscape Change in Jordan*.

While catchment and storage of rainfall can be practiced throughout, floodwater diversion and wells or qanats obviously require the presence of wadis or accessible underground aquifers.

The third zone consists of areas receiving less than 250 mm rainfall, where at best, in particularly wet years, precipitation passes the evaporation threshold, if at all. In this zone agriculture is only practiced where other sources of water can be tapped. As is evident from Egypt and Mesopotamia, such areas can nonetheless be highly fertile, if there are large areas of alluvial soils. During the Roman period, the only larger settlements (over 20 hectares) west of the Euphrates that were situated in this zone were Damascus, Palmyra, Petra and Elousa (in the Negev), with a larger number of smaller settlements in their surroundings. In all these cases, these settlements coincide with the known use of irrigation by accessing groundwater through qanats or wells, runoff catchment, or, in the case of Damascus, the diversion of river water.[65] Widespread use of irrigation using river water was a practice mostly limited to Mesopotamia. In case of the Orontes, due to the depth of the valley, over large sections of its course this required water lifting devices. Evidence for such norias is mostly dated to the fourth century C.E. and later, although there may be some indications of earlier use.[66] The majority of the region consists, however, of arid to highly arid steppes and deserts, with steppe areas only used for grazing, if at all.[67]

In all cases, slope and soil conditions are of course crucial to agriculture. Mountainous areas have both limited accessibility, as well as soils with limited fine material, or completely lack a topsoil and only show bare rock. As such, large parts of the northern Levant, while well-watered, provide only limited possibilities for cultivation because of the mountain ranges in this area, mentioned above. Good agricultural land is limited to the narrow coastal strip west of the coastal mountains and the Lebanon Range, and the Orontes and Beqaa valleys.[68] South of Tyre, slopes become less pronounced and the coastal plains wider, but the central highlands can nonetheless form significant obstacles for farming. At least, terracing is required.

The karstic landscape of the limestone massifs in the northeast is also less suited for agriculture. While widespread, the terra rossa soils here are thin, unploughable, of limited fertility and, as

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[65] Jørgen Christian Meyer, 'City and Hinterland. Villages and Estates North of Palmyra. New Perspectives', *Studia Palmyreńskie*, no. XII (2013): 269–86; Dale R Lightfoot, 'Syrian Qanat Romani: History, Ecology, Abandonment', *Journal of Arid Environments* 33, no. 3 (1996): 321–36; Z. Kamash, 'Irrigation Technology, Society and Environment in the Roman Near East', *Journal of Arid Environments*, Ancient Agriculture in the Middle East, 86 (November 2012): 65–74, https://doi.org/10.1016/j.jaridenv.2012.02.002.
[66] Kamash, 'Irrigation Technology, Society and Environment in the Roman Near East', 69; Adriana de Miranda, 'Water Architecture in the Lands of Syria : The Water-Wheels' (Ph.D., School of Oriental and African Studies (University of London), 2006), 79, http://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.428585.
[67] Cordova, *Millennial Landscape Change in Jordan*, 95.
[68] Mason and Crowfoot, *Syria*.

Wirth states, may require intensive labour to remove boulders before allowing cultivation.[69] These soils may have been more substantial in the Roman period, as Roman land use may have caused considerable soil degradation. The volcanic soils of the Hauran actually make it one of the more fertile parts of the region. But on the relatively younger lava flows of the Leja, almost no fine soils can be found that retain water and allow vegetation, except for small pockets of cultivable soil spread between the basaltic rock.[70]

It appears that up to the Hellenistic period, outside of Mesopotamia most urban settlements were limited to the first zone, with Damascus, Jericho and Tadmor (Palmyra) as notable exceptions in the driest regions, and, within the second zone, several Bronze Age settlements in the Hauran.[71] Of course, smaller sedentary occupation of the landscape was never limited to this zone, with for example small agro-pastoral settlements in southern Jordan.[72] In the Hellenistic and Roman periods, it appears that settlements outside of the optimal zone increased in size and number, with an expansion of settlement into the Negev, Southern Jordan and the Hauran. The locally specific methods by which the agricultural frontier was pushed forwards will be discussed in the relevant chapters.

Historical background of Roman annexation

In the Hellenistic period, the Levant was split up between the Greek dynasties of the Ptolemies and the Seleucids. After the defeat of Antigonos in 301 B.C.E., Ptolemaic influence extended at first to northern Judea and Phoenicia, up to the Eleutheros (Nahr al-Kebir). Even though the allies fighting against Antigonos had granted Seleukos I full possession of the Levant, he did not take action against de facto Ptolemaic control in the south, thus adding only northern Syria and eastern Anatolia to the Seleucid territories. After the deaths of Ptolemy I and Seleukos I, a series of wars was fought between the kingdoms, for which details are not entirely clear. It appears that for a short time Ptolemy III managed to wrest parts of northern Syria from Seleucid control during the Third Syrian War (246-241 B.C.E.), a military campaign originally supporting the pretender in a Seleucid succession crisis. However, Ptolemy only managed to hold on to the northern coastal cities including Seleucia Pieria for two and a half decades, while the rest was

[69] Georges Tate, *Les campagnes de la Syrie du Nord du IIe au VIIe siècle : un exemple d'expansion démographique et économique à la fin de l'antiquité* (Paris: Librorientaliste PGeuthner, 1992), 195–201; Wirth, *Syrien*, 118.
[70] Wirth, *Syrien*, 118, 420.
[71] Jérôme Rohmer, 'Late Hellenistic Settlements in Hawrân (Southern Syria). Survival of Proto-Historic Urbanism and Village Architecture in a Hellenized Context', *Bollettino Di Archeologia on Line* 1, no. Volume Speciale G / G5 / 2 (2010): 1–12.
[72] Kyle A. Knabb, Mohammad Najjar, and Thomas E. Levy, 'Characterizing the Rural Landscape during the Iron Age and Roman Period (ca. 1200 b.c.–a.d. 400): An Intensive Survey of Wadi al-Feidh, Southern Jordan', *Journal of Field Archaeology* 40, no. 3 (16 April 2015): 365–80, https://doi.org/10.1179/2042458214Y.0000000004.

quickly reconquered by Seleukos II. The Ptolemies were driven out of the Syrian territories permanently by the beginning of the second century B.C.E., at which point the Seleucid territory in the Levant extended to the borders of Egypt.[73]

At this time, Rome started to play an increasingly influential role in the region. It had already interfered several times in the Seleucid-Ptolemaic conflicts, and in 192 B.C.E. engaged in open warfare with the Seleucids over Rome's interests in Greece and Asia Minor. After the Seleucid defeat at Magnesia, the Seleucids lost control of their Asian territory beyond the Taurus to Rome and had to pay large indemnity payments. From that point, the Roman Republic appears to have started interfering locally. For instance, it at least nominally supported the newly-forming Jewish kingdom emerging from the Maccabean revolt when signing the treaty mentioned in I Maccabees and by Josephus. Even so, it does not appear that the Republic acted upon this treaty, nor did it interfere with the other kingdoms emerging in the Seleucid sphere, such as Commagene and Nabatea. Mostly, Roman influence was diplomatic, playing a role in Seleucid dynastic disputes.[74]

In the meantime, during the second and beginning of the first century B.C.E., the new kingdoms in the south expanded at the expense of the Seleucid empire. Despite some defeats against the Seleucids, in three decades of rule under John Hyrcanus, the Hasmonean state gained independence from the Seleucids and had expanded from Judaea proper, around Jerusalem, to include Samaria, many of the coastal cities, and Idumea, leading to conflict with the Nabateans. Shortly after, Alexander Jannaeus continued his expansion along the coast, further to the south, and into the Hauran, while quelling internal strife.[75] The Nabateans, who had probably already expanded their influence in the Negev during the third century B.C.E., spread further in the middle of the second century into the northern Transjordan and the Hauran. Attempts to expand into the Golan put them into further conflict with the Hasmoneans. In the east, the Parthians, who had already broken away from the Seleucid Empire in the preceding century, expanded westwards into Mesopotamia in the second century, which they controlled by 122 B.C.E., and only internal troubles and a succession crisis seem to have stopped a Parthian advance towards Commagene in 92.[76]

As in most parts of the empire, actual Roman control in the Near East did not come instantly. It was only with the expansion of Pontus under Mithridates VI and the subsequent Roman reaction

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[73] Sartre, *D'Alexandre à Zénobie*, 193–200.
[74] Warwick Ball, *Rome in the East : The Transformation of an Empire* (London etc: Routledge, 2000), 11–12, 47–49; Michael Avi-Yonah, *The Jews of Palestine : A Political History from the Bar Kokhba War to the Arab Conquest*, Blackwell's Classical Studies 821595792 (Oxford: Blackwell, 1976).
[75] Maurice Sartre, *The Middle East under Rome*, trans. Catherine Porter, Elizabeth Trapnell Rawlings, and Jeannine Routier-Pucci (Cambridge, MA: Belknap Pr. of Harvard University Pr., 2005), 12–16.
[76] Sartre, 16–26.

known as the Mithridatic Wars, that Syria for the first time saw Roman *caligae* on the ground. At first, in 83 B.C.E., Tigranes of Armenia, an ally of Mithridates, invaded Syria on the invitation of the inhabitants of Antioch. In the years before, he had already increased the size of his kingdom by conquering parts of Parthian Mesopotamia, making use of the Parthians' internal troubles. However, by 69, Tigranes had given refuge to his ally Mithridates VI, which gave Lucius Licinius Lucullus, commander of the Roman forces at that time, pretext to invade Armenia. As a result, Tigranes withdrew from Syria to defend his heartland. Lucullus had the last heir of the Seleucid dynasty reinstalled as a king in Syria, although he was certainly a client of Rome. Despite Rome's successes in Armenia, mutiny among the troops and political powerplay saw Lucullus replaced by Pompey, which gave Tigranes and Mithridates time to reclaim parts of their kingdoms. Pompey, however, drove Mithridates out of Pontus again, invaded Armenia and defeated Tigranes, but allowed him to keep his kingdom as a vassal to Rome.[77]

At the same time, from 66 B.C.E., two legates of Pompey were sent to take care of piracy and banditry in Syria, and by 64 were joined by Pompey and his troops. His first action in Syria, however, was to go to Antioch, take care of the Seleucid situation and annex Syria as a province. The Seleucid ruler installed by Lucullus, Antiochos XIII, had already had to repress a rebellion, and even faced a pretender, although he probably died in a riot at Antioch. Antiochos XIII himself fled from Antioch to Sampsigeramos, the ruler of the Emesenes, when Pompey refused to recognise him as a client king and dismissed him. Sampsigeramos, however, had him killed, and unsurprisingly, like several other of the more powerful principalities in the region, the Emesenes were allowed to become one of the clients of Rome. Whatever Sampsigeramos' intentions, whether personal glory, securing order in the Mediterranean by extending Roman control, or a move related to Roman-Parthian relations, the annexation of Syria had begun.[78]

But, while after the Mithridatic Wars a province was created in the north under direct Roman control – barring a few client kingdoms – Roman influence in the south relied to a greater degree on its client kings. In the south, Pompey's activities had caused several significant changes. While Pompey was creating the Syrian province in the north, the Hasmoneans were faced with a power struggle between the ruling high priest, Hyrcanos II, and his brother, Aristobolus II. The high priest was driven out of Jerusalem, but called Aretas III, the king of the Nabateans, into the conflict. Together they besieged Aristobolus in Jerusalem. Both sides sought Roman support from Pompey's legate, Scaurus, when he arrived at Jerusalem. When he judged in favour of Aristobulos, Aretas and his troops lifted the siege and retreated to Philadelphia, but were pursued and defeated by Aristobulos. In 63, Pompey arrived in Damascus, from where he

[77] Butcher, *Roman Syria and the Near East*, 20–23; Sartre, *The Middle East under Rome*, 27–30, 37–39.
[78] Sartre, *The Middle East under Rome*, 40; Butcher, *Roman Syria and the Near East*, 23.

intended to march against the Nabateans. However, presented by three Jewish delegations, one for each brother and one for the Pharisees opposing both sides, he decided that Hyrcanos would make the better client and marched on Jerusalem, taking several cities on the way from Aristobulos. Upon defeating him and his troops after a three months' siege of the temple, he confirmed Hyrcanos II as high priest, but did not give him the royal title.[79]

Where the Hasmonean state had, with the conquests of Hyrcanos and Jannaeus, expanded greatly in most directions, incorporating many formerly independent cities, Pompey greatly reduced this territory, granting independence – as Roman clients – to the coastal cities, as well as a group of cities east of the Jordan, from that point known as the Decapolis. At the end of 63, Pompey left Syria, leaving Scaurus as a temporary governor until a replacement was assigned by the senate in 59 B.C.E.. Scaurus undertook a campaign against the Nabateans, but appears to have been paid off to leave, and from that point the Nabateans acted as an ally or client to Rome. In the next decades, Crassus undertook a failed campaign against the Parthians in 53 B.C.E., and was defeated and killed; subsequent Parthian campaigns against the Romans in 51 and 41 and 38 were unsuccessful. The decades following Pompey's annexation also saw the Levant drawn into the Roman civil wars, first when Pompey and Caesar and their supporters went head to head, and secondly, when Octavian and Antony fought out the final Republican war.[80]

The civil wars were instrumental in deciding the fates of the cities and clients of the Republic in the east. For instance, Arados had already lost territory when siding against Caesar, and lost the rest of it when it opposed Antony. Other clients, such as the Emesenes, Nabateans and Itureans, having supported Caesar, retained their independence far longer. The Hasmonean state had already been reorganised by Gabinius into five districts governed by an assembly or *synedrion* (sanhedrin) at Jerusalem, Gadara, Amathus, Jericho and Diocaesarea, removing any remaining political power from the high priest. As a reward for military support, Caesar allowed Antipater the Idumaean, who had been an advisor to Hyrcanos II, to administer the Hasmonean state, and his two sons, Phasael and Herod, became governors of Jerusalem and Galilee respectively. However, after the second Parthian campaign, Antigonos, the last Hasmonean, usurped the throne with help from the Parthians. In response, Herod, the son of Antipater, was proclaimed king by Antony, albeit of a kingdom he yet had to reconquer with Roman help. Upon defeat, Antigonos was led to Antioch and executed. As a result, the Hasmonean dynasty was replaced by the Herodians. Where Antony had seen fit to grant several southern cities to Cleopatra, among other grants of territory such as Cilicia and the Iturean state around Chalcis, the coastal cities were reverted to the Jewish state by Augustus. Furthermore, in order to counter banditry in the

[79] Ball, *Rome in the East*, 47–60; Sartre, *The Middle East under Rome*, 88–103.
[80] Sartre, *The Middle East under Rome*, 44–51.

Trachonitis, Augustus granted this region, as well as Auranitis and Batanea, to Herod, where Pompey had originally made the cities in the area independent.[81]

After Herod's death in 4 B.C.E., the kingdom was divided among his sons and sister, while Gaza, Gadara and Hippos were annexed into the Province of Syria. But within ten years, Archelaus, who ruled over Judaea, Samaria and Idumaea, was dismissed and exiled, upon which his lands became part of the Syrian province and were ruled by a legate at Caesarea from 6 C.E. onwards. Philip's tetrarchy was annexed upon his death by Tiberius, but was granted within a few years to Agrippa I, the grandson of Herod. Agrippa's belongings were increased first with the last other tetrarchy, that of Antipas, and then, by Claudius, also with the Roman-controlled Judean territories. When he died after only a few years, Roman control was reinstated. His son, Agrippa II, several years later inherited the kingdom of Chalcis from his uncle and again was granted the northern territories that had belonged to Philip and Lysanias. Upon his death at the end of the first century C.E. his lands were annexed as well, and with that the whole of the Jewish territory became controlled as a province directly by Rome.[82]

From 106 C.E., the Nabatean kingdom was annexed as well. How this took place is not entirely clear. Contrary to expansion in other areas, it appears this was not advertised in Rome until several years after the fact. There are some hints that the city wall of Petra may have been constructed just before, rather than after 106, suggesting that this was not necessarily (expected to be) a peaceful process. It is clear, however, that after this point, several military positions in the south of Judea were abandoned, and the region no longer functioned as a border zone. The formerly Nabatean lands were then organised as the *provincia* Arabia, and the Roman annexation of the southern Levant was completed.[83]

[81] Sartre, 51–53; Butcher, *Roman Syria and the Near East*, 36–38.
[82] Sartre, *The Middle East under Rome*, 93–101.
[83] Ball, *Rome in the East*, 60–64.

Chapter 1 Settlements in the northern Levant

1.1 Introduction

In order to understand how and why the urban systems of the Roman Levant functioned as they did, this chapter will first discuss how the urban systems were actually shaped. That means it is necessary to bring together the actual cities in the context of their geographical and historical settings, and to determine their civic status, settlement size and levels of monumentality.

The northern provinces of the Roman Levant, Syria Coele, Syria Phoenice, Osrhoene and Mesopotamia, are remarkable because there were only a limited number of cities, but these were particularly large, the more so compared to the overview of the cities in the southern Levantine provinces. And while the province of Syria was not a very large province, even before it was divided into Coele and Phoenice by Septimius Severus, the average distance between these cities was nonetheless 32.9 km, a much larger distance than what can be seen in the south. With the eastwards expansion beyond the Euphrates, Roman control expanded over an area even more characterised by a few large cities.

As already indicated in the geographical overview, the agricultural zone was limited by the Syrian steppe and desert zones. With cities mostly bound to areas suitable for agriculture, we find the main urbanised zone in and around the western coastal area, which will be discussed here first. Our focus will then move east towards the cities on the Euphrates, Palmyra, and the cities of northern Mesopotamia.

Along the coast, settlements were located on the mostly rather narrow coastal plain between the Mediterranean and the Syrian mountain ranges in the north, and the Lebanon range in the south. Here we find, from north to south, the Seleucid foundations of Seleucia and Laodicea, and the old Phoenician cities of Arados, Byblos, Berytus, Sidon and Tyre, interspersed by a number of smaller settlements, both dependent and independent. Inland, we also find settlements spread along the various plains and lower highlands that border the coastal mountain ranges on the eastern side. Antioch and its dependent settlements covered the Amuq plain and the surrounding highlands. To the northeast, we find Cyrrhus in its own fertile plain. Further south, Beroia (Aleppo) and Chalcis ad Belum were located in the plain named after the latter city. Following the Orontes to the south, the large and marshy Ghab Valley fell within the territory of Apamea. Further upstream were Larissa and Epiphanea, before entering what had been the kingdom of the Emesenes, with Arethusa and Emesa. On the west, it was bordered by Raphanea and Mariamme, which had previously formed the easternmost part of the territory of Arados. The last of these valleys, the Beqaa, had Heliopolis (Baalbek) at its heart, formerly part of the territory of Berytus. In addition, the as yet unlocated city of Chalcis sub Libano should be located

somewhere in this area. This had been, for 70 years, the main city of an independent Iturean kingdom.[84] Across the Antilebanon mountains was Damascus.

Among the Syrian cities, only Heliopolis (Baalbek) acquired urban status during the studied period. Before the Roman occupation, it had already existed as a sanctuary, probably founded in the Hellenistic period as part of the territory of Chalkis; even earlier, it seems to have been a minor tell settlement since the Neolithic period.[85] Several cities were Seleucid foundations, notably among them the Tetrapolis, the largest four cities in the region: Antioch, Apamea, Seleucia and Laodicea. The majority of the cities, however, had existed long before the Hellenistic period. Thus, instead of large-scale creation of new cities, on an urban level the Roman impact was more to provide a different impulse within the development of an already existing settlement pattern, much like previous political entities had left their own mark on this development. As this chapter will show, the main difference lay in the higher level of scale to which these places developed, and the impact this had on settlement development in the countryside.

1.2 Regional descriptions

1.2.1 The Seleucid core

The tetrapolis (Figure 7), the four great cities of Syria, are remarkable examples of the potential scale and splendour of urbanism in the Roman East. On more than one level, they also stand apart among the cities of the Roman Levant. As mentioned above, in the first place they were considerably larger than almost all Levantine cities, while at the same time being relatively young foundations. But also within the Hellenistic period, they were important centres for the Seleucid dynasty. In the second and first centuries B.C.E. they were granted the privilege to call themselves 'holy' and 'inviolable', and halfway the first century B.C.E., Antioch was the first (and only) city to call itself a metropolis.[86]

Antioch was not initially the largest of these cities, or most important per se. And in the first century of the Seleucid kingdom, there was no fixed capital. Seleucia Pieria and Laodicea ad Mare were major port cities. Antioch served as a staging point towards Asia Minor, while Apamea served as the military headquarters directed towards the south. But Seleucia was

[84] Andreas J. M. Kropp, *Images and Monuments of Near Eastern Dynasts, 100 BC - AD 100* (OUP Oxford, 2013), 29–31.
[85] Margarete van Ess, 'Scientific Aims of the German-Lebanese Archaeological Project in Baalbek', in *Baalbek/Heliopolis: Results of Archaeological and Architectural Research 2002-2005*, ed. Margarete van Ess and Jeanine Abdul-Massih, Bulletin d'Archéologie et d'Architecture Libanaises. Hors-Série 4 (Beyrouth: Ministère de la Culture, Direction Générale des Antiquités, 2008), 11–29.
[86] John D. Grainger, *The Cities of Seleukid Syria* (Clarendon Press, 1990), 162, 176–77; Kristina M. Neumann, *Antioch in Syria: A History from Coins (300 BCE–450 CE)* (Cambridge University Press, 2021), 110.

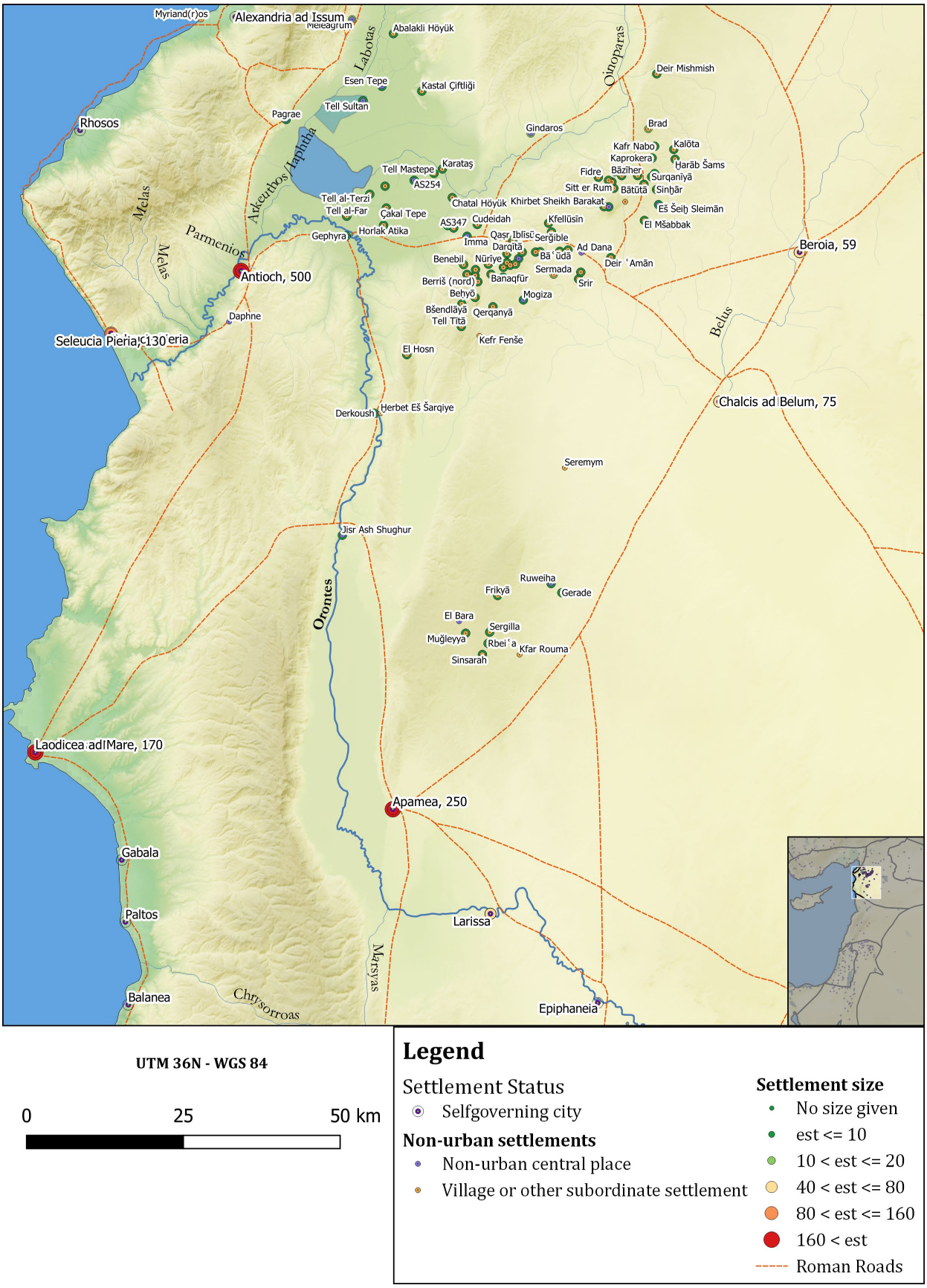

Figure 7 The Tetrapolis

captured by the Ptolemies for several decades, and Apamea became less relevant with the Seleucid conquest of Palestine, allowing Antioch to become the more prominent of these cities.[87]

1.2.1.1 The size of Antioch and its suburbs

The size of Antioch's built-up area is only known by approximation. The archaeological record for the city is relatively limited, compared for instance to Dura Europos. Research is hampered because much of the ancient city is buried beneath several meters of river sedimentation, and covered by a rapidly expanding modern city. Some traces of the antique street grid and the main colonnaded road are recognisable in the modern plan, and there are standing remains of parts of the city wall, citadel, a temple and aqueducts, but not much more.[88] The most comprehensive archaeological project took place between 1932 and 1939 under the auspices of a committee of various institutions, chief amongst them Princeton University, led by field director William A. Campbell. The project was cut short when the region, which was a League of Nations mandate under French control, was transferred to Turkish control. Even though the initial aim of the project was to uncover the layout of the city and find some of the greater monuments the city offered in the past, focus shifted to the search for mosaics when the first of these was encountered, and in the end the expedition added rather little to what was already known from literary sources.[89] In later years little research took place, except for a somewhat belated publication of the fifth part of the *Antioch-on-the-Orontes* reports in 1972 on the colonnaded street, by Jean Lassus, one of the members of the 1932-1939 excavations.[90] Only from 2004 did a new series of urban surveys start in Antioch, a major feature of which has been the study of the walls.[91]

To arrive at the best estimate of the city's size, four aspects need to be studied. First and foremost, the walled area of the city. For many cities, the city walls are practically the only indicator for the built-up extent of the city, and to a certain degree this is true for Antioch as well. The second aspect is the actual area suitable for buildings within these walls, as the walls of Antioch do not only enclose the city itself, but by make use of the natural defences granted by Mount Silpius and Staurin and enclose parts of these mountains as well. Thirdly, the course of the Orontes river.

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[87] Grainger, *The Cities of Seleukid Syria*, 120–28.
[88] Grégoire Poccardi and Jacques Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte', *Syria* 76, no. 1 (1999): 91–126, https://doi.org/10.3406/syria.1999.7645.
[89] W. A. Campbell and R. Stillwell, eds., *Antioch-On-the-Orontes*, vol. 3 (Department of art and archaeology of Princeton University. In-fol., fig., pl., 1938), 3–6; Christine Kondoleon, ed., *Antioch : The Lost Ancient City* (Worcester (Mass.): Worcester Art Museum, 2000), 5–8; Glen Warren Bowersock, *Studies on the Eastern Roman Empire: Social, Economic and Administrative History, Religion, Historiography* (Keip Verlag, 1994), 423, 424.
[90] Jean Lassus, George Wicker Elderkin, and Richard Stillwell, eds., *Antioch-on-the-Orontes*, vol. 5 (Princeton: Princeton University Press, 1972).
[91] Hatice Pamir and Gunnar Brands, 'The Asi Delta and the Asi Valley Archaeological Project in 2004: Samandağ and Antakya Surveys', *ANMED* 3 (2005): 103–8.

Besides forming an important boundary for the city, part of Antioch lay on an island in the river, but as the course of the river has changed over time, this island no longer exists. Determining the shape and size of the island would help to determine the city's size. Finally, the possible extent of the suburbs is of importance. This is clearly the most tentative of these aspects, both because of the lack of archaeological data, as well as the simple fact that it can be hard to clearly define where suburbs end and the countryside begins.

Walled area and built-up area

Part of the construction history of the city walls is known. The initial Hellenistic settlement was already walled, and so were second century B.C.E. expansions onto the island and in the mountains. Under the Roman Empire, the walls were either restored or expanded by Tiberius, and were expanded again in the first half of the fifth century by Theodosius II on the southwestern side of the city.[92] The final large-scale modification took place under Justinian, who reduced the size of the city walls to match the smaller Antioch of his time, limiting its extent in the north and west.[93]

As said, considerable parts of the ancient city wall of Antioch are still intact, mostly over the crest of Mount Silpius and Staurin. As Gunnar Brands wrote in 2004, the walls show a clear variety in building styles at various points, betraying several building and repair phases. A joint German-Turkish team studied the city's defences until 2009, but their results have not yet been published; parts of their mapping efforts are shown in Weferling et al.[94] It is clear that most of the visible remains essentially represent the Justinian, sixth-century state of the walls with later Medieval repair phases, while several parts of what may be Hellenistic walls are visible as well. Furthermore, 18th- and 19th-century engravings by Cassas and Bartlett, as published in Downey, also show a clear Late Roman building style for the walls on the south side of the town, which were destroyed when Ottoman barracks were constructed there.[95]

On Mount Staurin, Pamir and Brands have clearly identified the existence of an inner and an outer wall, as indicated on Figure 8. They were able to trace the outer wall from the north over the Parmenios gorge, in the direction of the Byzantine citadel. Although the exact way it was connected to the Silpius stretch remains unclear, there are indications of a five-sided tower where

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[92] Glanville Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest* (Princeton, 1961), 92–94, 163–235, 452.
[93] Downey, 519–57.
[94] Gunnar Brands, 'Orientis Apex Pulcher-Die Krone Des Orients: Antiochia Und Seine Mauern in Kaiserzeit Und Spätantike', *Antike Welt* 35, no. 2 (2004): 16; U. Weferling et al., 'Antiochia Am Orontes – Geodäsie Un Photogrammetrie Als Unverzichtbarer Beitrag in Bauhistorischen Und Archäologischen Projekten', no. Allgemeine Vermessungs-Nachrichten (2007): 295-298 images 3 and 4.
[95] Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*, images 20 and 21.

the walls would have met.[96] The outer wall also showed several building phases. While clearly dating to an early period, the various building styles have as yet not been securely matched to specific building phases, and Brands suggests that, although it could be the wall of Epiphaneia, one of the early Hellenistic expansions of the city, it could also be the outer wall mentioned in Strabo, or the early imperial walls described by Malalas.[97] On the northern side, further towards the city, this outer wall seems to run quite close to the inner, Justinian wall. This corresponds to one of Cassas' engravings showing the remains of a ruined, older additional gate close in front of a larger one.[98]

For the walls on Silpius, it seems very likely that there was no 'outer' wall here; instead, there was one single wall with several construction and repair phases. Some stretches of the wall were found to match the design of the wall shown in Cassas, in the plains on the southern side of the city, running from the mountains to the river. This section would have been the 'Theodosian' expansion, enclosing more of the city in a southerly direction.[99] Its location can be pinpointed without much doubt, as the Phyrminios, the torrent along which it lay, is still visible in older photographs, and the ravine through which it ran is rather obvious. Essentially, from the last point at which the walls are still discernible, it ran northwest up to the Orontes.

On the side of the river, a long stretch of the Justinian wall was mapped by the Princeton expeditions, and its location is confirmed on aerial photographs from the 1920s and 1930s.[100] On that basis, the location of the left branch of the Orontes was traced as well. However, it is thought that before Justinian's restructuring of the defences – he also dug a canal, straightening the river along the new wall – this branch of the river turned westwards where the Parmenios, running down from the mountain, joined the Orontes.[101] The Tiberian wall would then have followed this river course (see Figure 8). The further course of the wall is mostly speculative, with only the bridge gate and two short stretches of the Justinian wall as known points in the fortifications.

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[96] Hatice Pamir, Gunnar Brands, and Shinichi Nishiyama, 'Hatay Yüzey Araştırmaları 2007: Antakya, Samandağ, Yayladığı ve Altınözü', *Araştırma Sonuçları Toplantıları* 26, no. 3 (2008): 8.
[97] Hatice Pamir, Gunnar Brands, and Çevirici Figen, 'Hatay İli, Antakya, Samandağ ve Yayladağı: Yüzey Araştırması 2006', *Araştırma Sonuçları Toplantıları* 25, no. 3 (2007): 403; But note as well this student report at the Technical University of Berlin after work done in the area, mentioning that there may be grounds to believe that this was in fact Iopolis, and Epiphaneia should be sought against the slopes of Mount Silpius, as also described by Downey <http://baugeschichte.a.tu-berlin.de/hbf-msd/MSD-ab_2006-08/antiochia_web.pdf> accessed 11-07-2013.
[98] Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*, Images 11 and 20.
[99] Pamir, Brands, and Figen, 'Hatay İli, Antakya, Samandağ ve Yayladağı: Yüzey Araştırması 2006', 402; Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*, 612.
[100] Poccardi and Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte'; Charles R. Morey, 'The Excavation of Antioch-on-the-Orontes', *Proceedings of the American Philosophical Society* 76, no. 5 (1 January 1936): 639, https://doi.org/10.2307/984752.
[101] Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*, 548.

That leaves the southern tract of the 'Tiberian' wall, of which nothing can be said with certainty. Knowing its location would help to reconstruct the city's size in the second century. The wall at least incorporated the bridge gate, but should not be sought further to the north-east than that. The first two main street digs of the 1930s expedition were located at this location, but did not find any traces of the city wall.[102] It is of course conceivable that the wall ran closer to the location of the Theodosian extension. In the proposed figure, the wall is drawn in a straight line from the bridge, perpendicular to the main road, towards the mountains.

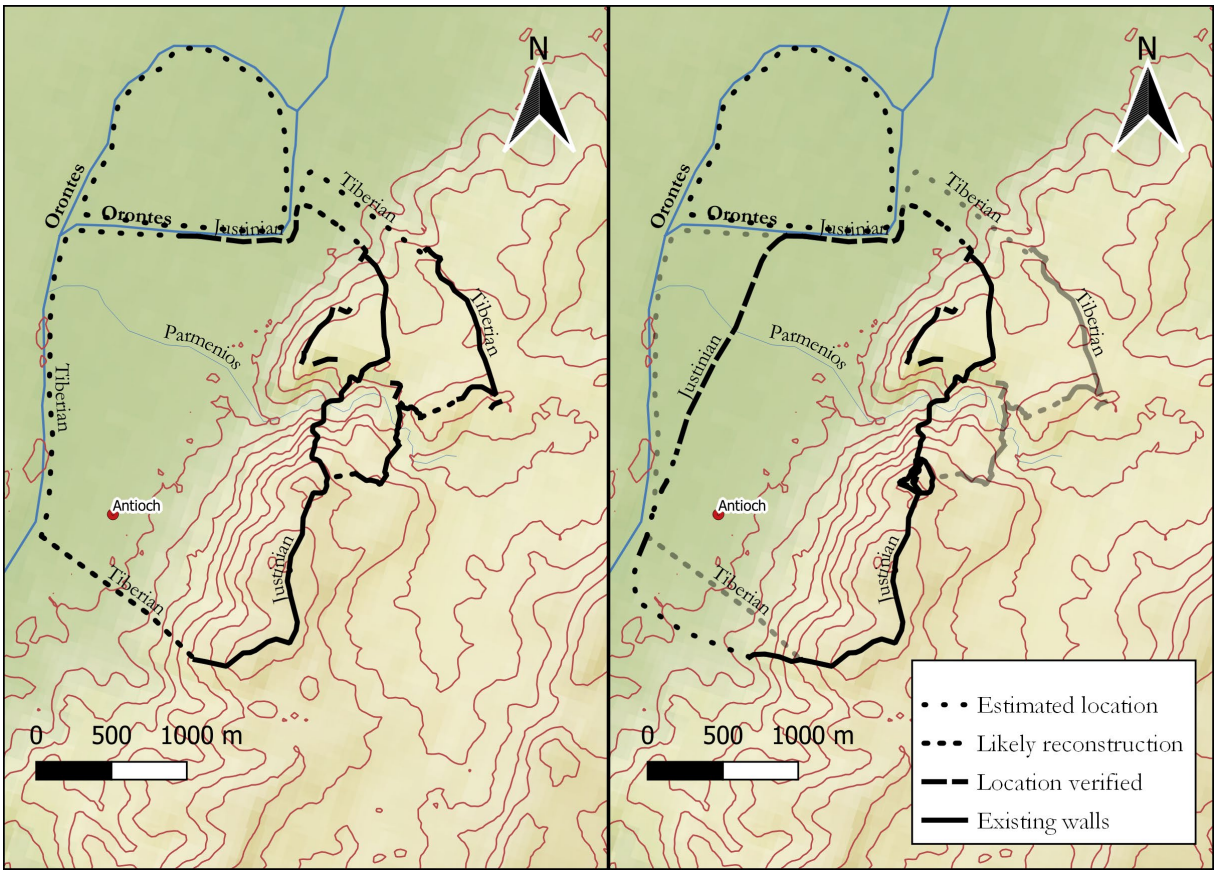

Figure 8 Tiberian (left) and Justinian (right) walls of Antioch

At its greatest possible extent, this gives a total walled area of 627 ha within the proposed line of the walls on the mainland. However, as is shown in Figure 8, the actual walled area for any period would have been smaller than that. For the Justinian period, 'only' 455 ha of the mainland city was actually walled. While the Justinian walled area is fairly secure, for the earlier periods a larger degree of uncertainty exists. The second-century walled area would be larger in most directions, except the southern extension, with around 590 ha plotted in the map. The northern extension could easily be 10 hectares larger or smaller, if at the last stretch the outer wall ran closer (or less close) to the Justinian wall. Similarly, on the south side, the city might also have been larger, if the

[102] Downey, 206, 620; Lassus, Elderkin, and Stillwell, *Antioch-on-the-Orontes*, 5:31, 72.

Tiberian wall was positioned further out in that direction. On the other hand, on the riverside the city might actually have been smaller by up to 15 hectares, depending on the course of the river. Therefore, a range of 565 to 610 hectares is a safe estimate for Antioch's walled area in the second century (not counting the island, see below).

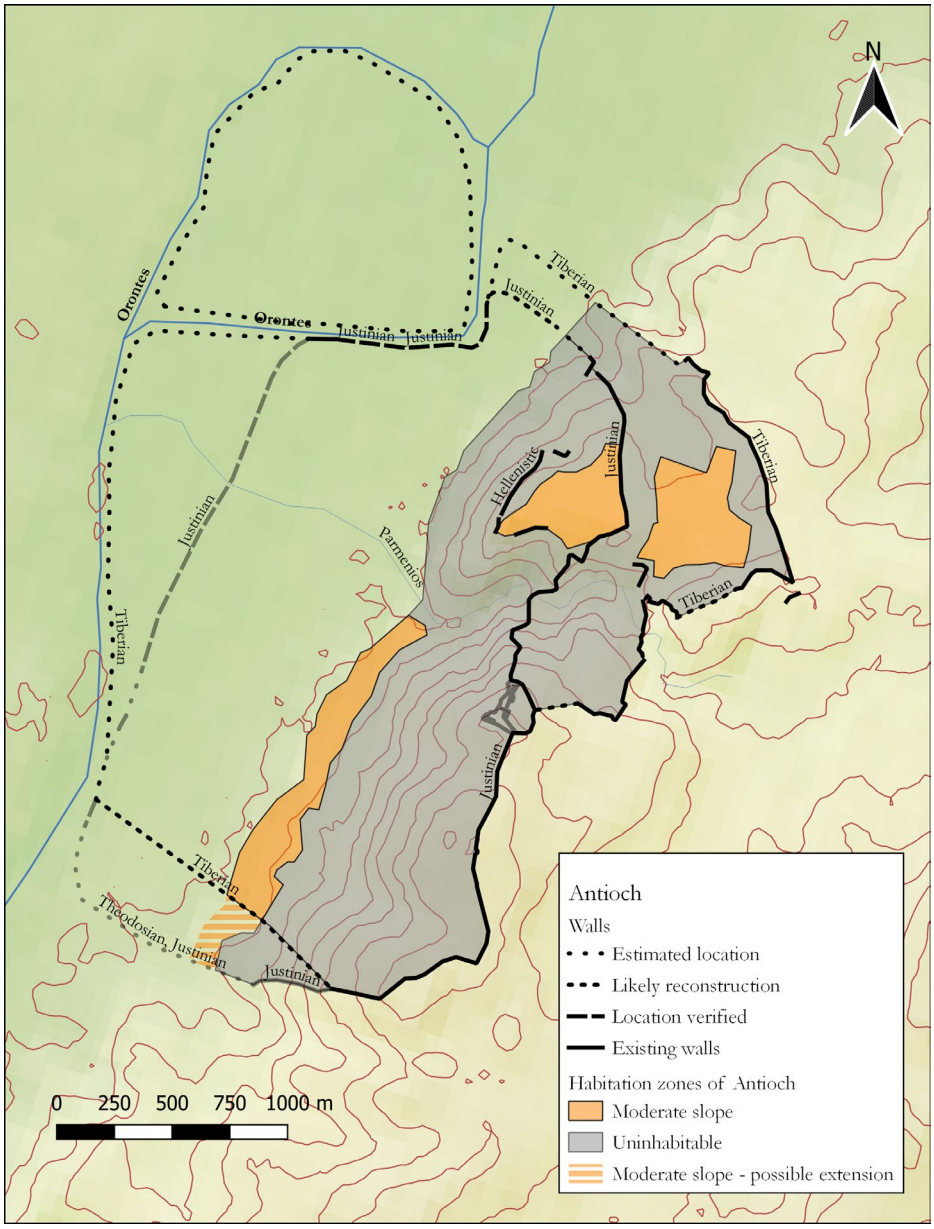

Figure 9 Moderate slopes and uninhabitable areas

Naturally, as a significant part of this area consists of the slopes of Silpius and Staurin, considerable corrections should be made for the actual buildable area within the walls (Figure 9). Looking at slope levels, modern construction, and finds by the Princeton team it can be determined which parts of the mountainside might have been built upon.[103] In the first place, the

[103] W. A. Campbell and R. Stillwell, eds., *Antioch-On-the-Orontes*, vol. 2 (Department of art and archaeology of Princeton University. In-fol., fig., pl., 1938), 215.

lower slopes of the mountains, marked as orange areas in Figure 9, could and clearly did see construction, contrary to what Poccardi for instance claims.[104] Furthermore, two areas on mount Staurin are level enough for habitation, one measuring 13,5 hectares within the inner wall, and one measuring about 17,5 hectares within the outer wall. Three sections of the eastern of these areas were studied with geophysics, and showed indications of a regular street pattern with at least eight *insulae* of roughly 65 by 30 meters, oriented in a north-south direction. Additionally, ceramic surveys in the area indicated it was inhabited from the Hellenistic period onwards. [105]

For the Justinian city, that takes away 178 ha of uninhabitable area, reducing it to 277 ha of buildable area within the walls. For the proposed area of Tiberian walls, the total non-buildable area would be around 235 to 245 hectares. The figure is relatively secure compared to that of the whole city, as most of the walls on the mountain are known; only the southern extent is hypothetical, but bound by the limits of the Justinian wall. The actual buildable area for the second century would be between 330 and 365 hectares (with 50 to 55 hectares on the lower slopes and plateaus of the mountains).

The second main area of the city was the island formed by two branches of the river, which no longer exists. Libanius described it as follows: "The new city stands on the island which the division of the river formed [...] The form of this new city is round. It lies in the level part of the plain, the whole of it in an exact plan, and an unbroken wall surrounds it like a crown."[106] As mentioned above in relation to the walls on the mainland, Poccardi studied the course of the river and the shape and size of the island with the aid of maps and old aerial photographs from the French Mandate period (Figure 10).[107] He argues that the reconstructed map of the city as drawn by Wilber, which is often used as the basis for other maps, shows the island as smaller than it could possibly have been, as the circus appears to be drawn out of proportion and out of place. In fact, the entire map appears to be out of proportion, which is odd, as the expedition produced far more accurate maps to show its findings in the reports.[108] Essentially, the island should have been drawn with a larger extension to the north. Beyond that, however, Poccardi's reconstruction of the right fork of the river is no less hypothetical than that of Wilber, nor does he give any clear

[104] Poccardi and Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte', 124 note 48.
[105] Hatice Pamir and Gunnar Brands, 'Asi Deltası ve Asi Vadisi Arkeolojisi Projesi: Antakya ve Samandağ Yüzey Araştırmaları 2005', *Araştırma Sonuçları Toplantıları* 24, no. 2 (2006): 410–11; Gunnar Brands and Cornelius Meyer, 'Antioch-On-The-Orontes and Seleucia Pieria 2004: Preliminary Results of the Geophysical Survey', *Arkeometri Sonuçları Toplantısı* 21 (n.d.): 150.
[106] Libanius, *Or.* 11.203-204.
[107] Poccardi and Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte'.
[108] Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*; Kondoleon, *Antioch*, xv. In Kondoleon's case this is rather astounding, as in the legend, the author who recreated the map clearly refers to the same article by Poccardi that shows how Wilber's map is out of proportion.

arguments for why he draws it where he does.[109] In comparison to the left fork of the river – which shows clearly on Poccardi's photos and on CORONA satellite imagery – the right fork has not left such obvious traces.[110]

Campbell's team did not manage to locate it either. During a heavy flood in 1938 the expedition hoped to gain some additional insight into the lie of the old channels by photographing the area

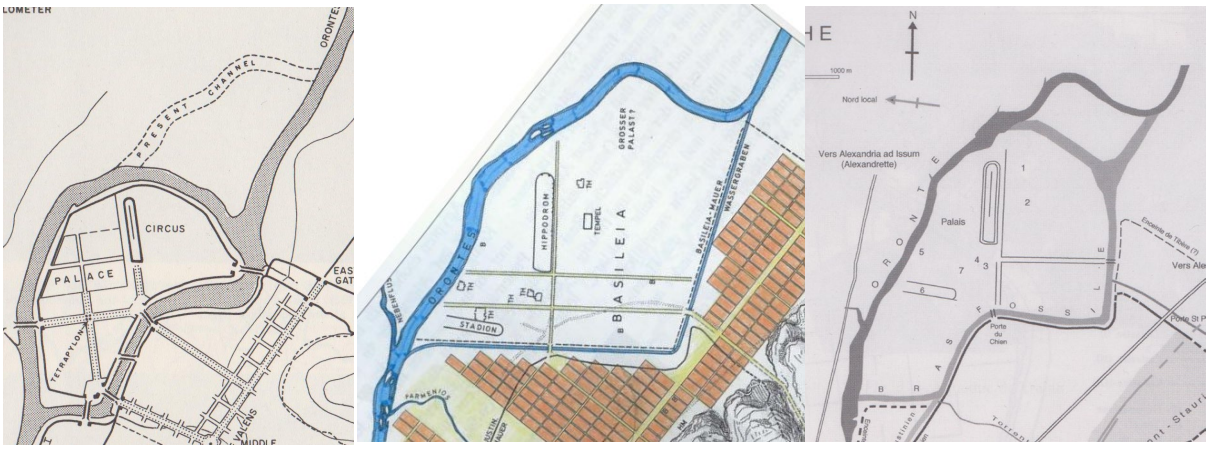

Figure 10 Reconstructions of the island by Wilber, Hoepfner and Poccardi

from the mountains, but as they stated, there was such a vast amount of flooding that little could be gleaned.[111] Hoepfner's reconstruction suggests taking the current riverbed as the limit of the northern edge of the island. This seems as likely as any of the other options, and allows for a far larger area for the palace, placed east of the circus, rather than west.[112] Considering the layout of the outer wall as discerned by Brands, and accepting the suggestion by Hoepfner that the wall was located more or less in line with the northern side of the island, there is much to be said for Poccardi's reconstruction. However, the resulting shape of the island is far removed from what Libanius describes, a supposedly circular or symmetrical in shape. In the spirit of Hoepfner's reconstruction, but with the northern side matching that of Poccardi (and in a sense Wilber), I've created the reconstruction shown in Figure 11. This would give an island of 120 ha. But, considering that the shape is very tentative, it could easily have been over 30 hectares larger, if

[109] Grégoire Poccardi, 'Antioche de Syrie : Pour Un Nouveau Plan Urbain de l'île de l'Oronte (Ville Neuve) Du IIIe Au Ve Siècle', *Mélanges de l'École Française de Rome. Antiquité* 106 (1994): 1014–16, 1022–23.
[110] Poccardi and Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte', Especially 102-103 figs 5, 106–107 6, 108–109 7 and 116–117 fig 11; Center for Advanced Spatial Technologies, University of Arkansas/U.S. Geological Survey, 'Corona Atlas of the Middle East', 5 June 2013, http://corona.cast.uark.edu/. See chapter three for the use of Corona images by the AVRP project in locating sites in Antioch's territory.
[111] Campbell and Stillwell, *Antioch-On-the-Orontes*, 1938, 3:6.
[112] Wolfram Hoepfner, 'Antiochia Die Grosse : Geschichte Einer Antiken Stadt', *Antike Welt* 35, no. 2 (2004): 3–9.

any of the other reconstructions end up being closer to the truth. For the whole city, that would give between 685 and 730 ha of walled area, of which 450 to 515 ha was buildable.

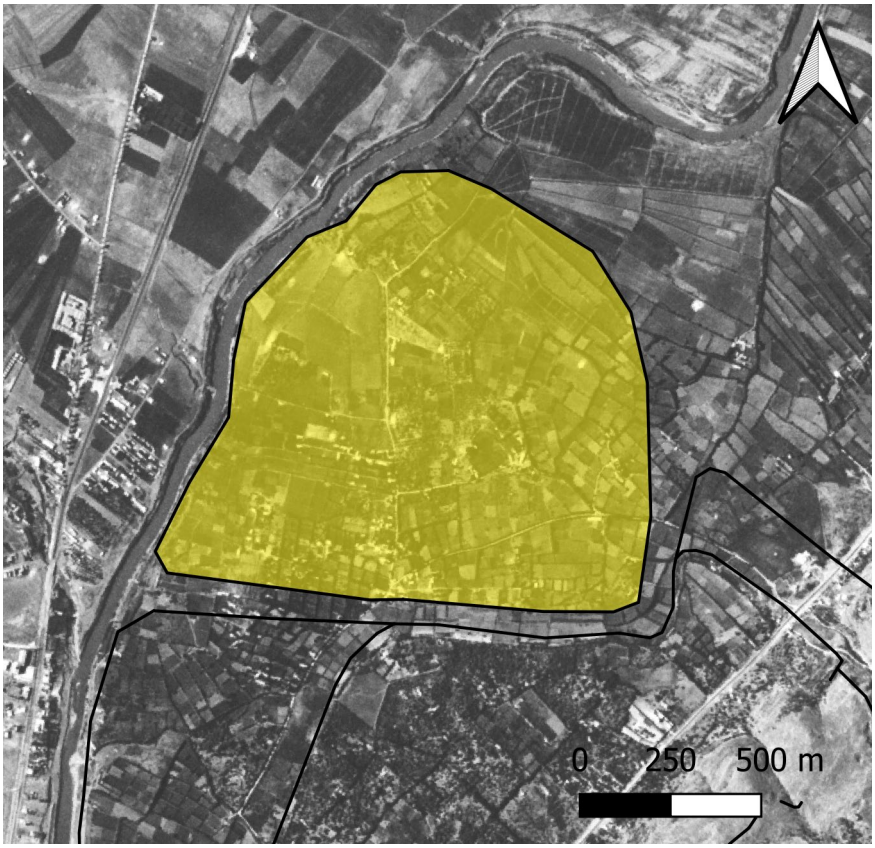

Figure 11 Reconstruction of the island

Extra-mural Antioch

If the walled area of the city already left some room for discussion, it should come as no surprise that determining the extramural area of the city is particularly tricky. There is, however, little doubt that the city did possess considerable suburbs. Although the literary evidence comes mostly from later authors, we read in Libanius: "Let one count over also what lies outside the gates [...] if one were to bring together into one form what is now divided into three, the part which is now before the city would be sufficient to be a city itself".[113]

For the suburbs on the north-eastern side of the city, several interesting remarks were made by Casana and Wilkinson in the light of the Amuq Valley Regional Projects, although unfortunately, this is all they reported on it:

> Results of survey in this area suggest that contrary to earlier, historically-based reconstructions of the growth of the city, the densely settled, urbanised area of Antioch extended as far as the Byzantine city walls as early as the third century

[113] Libanius, *Or*. 11.231

> B.C. […] By the first century A.D., the suburbs of the city extended at least 2 km to the north of the city walls, as is suggested by ceramics from the Roman occupational horizon in this area.[114]

Without any additional details it is impossible to know how densely this area would have been built-up. Are we looking at a spread out of housing with gardens? In another article Casana only adds that several fifth- and sixth-century houses were uncovered about a kilometre north-east of the walls.[115]

Additional indications for the location and size of the suburbs may come from the continuation of the urban street grid outside of the city walls. Like many Seleucid cities, Antioch was organised in an orthogonal city grid, with roads running perpendicular to each other at fixed distances, the blocks thus formed known as *insulae*. While for Antioch the grid and its survival in the layout of the modern city have already been studied since the 1930s, it was once again Poccardi who showed that on the south-western side the grid continued for about 2 km beyond the walls and perhaps further, on both sides of the river. To the north-east, there are similar, but far less clear traces for at least about 700 m. This of course does not answer the very important questions of when the grids expanded in these directions, nor how the land was used.[116] Towards the south-west, the 2004 report of Pamir's Asi Delta and Asi Valley Archaeological Project surveyed the east bank of the Orontes between Daphne (Harbiye) and Antioch, indicating an agrarian character for the region, with small villages or single farms from the Hellenistic period at the earliest, and two noria-type waterwheels.[117] Looking at other Syrian cities, a similar continuation of the Hellenistic urban grid beyond the walled area can also be seen for Aleppo and Damascus. In both cases, however, this is clearly an organisation of the countryside rather than a continuation of the city proper, and in the Roman period around both those cities, as well as around Emesa, the countryside is reorganised into a centuriation grid.[118]

Like several other cities of the period in the Roman Near East, Antioch's cityscape was defined by its long, monumental colonnaded main street. In the case of Apamea, it has been shown that the

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[114] Jesse J. Casana and Tony J. Wilkinson, 'Settlement and Landscapes in the Amuq Region', in *The Amuq Valley Regional Projects*, ed. K. Aslıhan Yener, Stephen Batiuk, and Robert Kriech Ritner, vol. 1 (Chicago: Oriental Institute of the University of Chicago, 2005), 42.
[115] Jesse J. Casana, 'The Archaeological Landscape of Late Roman Antioch', in *Culture and Society in Later Roman Antioch* (Oxbow Books, 2004), 118–20.
[116] Poccardi and Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte', 111–13, 126.
[117] Pamir and Brands, 'The Asi Delta and the Asi Valley Archaeological Project in 2004: Samandağ and Antakya Surveys', 106; Hatice Pamir and Gunnar Brands, 'Asi Deltası ve Asi Vadisi Arkeoloji Projesi: Antiocheia, Seleuceia Pieria ve Sabuniye Yüzey Araştırmaları 2004 Yılı Çalışmaları', *Araştırma Sonuçları Toplantıları* 23, no. 2 (2005): 99.
[118] F. Villeneuve et al., 'Le Paysage Antique En Syrie : L'exemple de Damas', *Syria* 67, no. 2 (1990): 349–54, https://doi.org/10.3406/syria.1990.7161.

colonnade, lined with shops, continued for 70 meters beyond the walls of the city.[119] Similarly, if we had an idea about the length of Antioch's main street beyond the walls, this might help in defining the extension of the suburbs as well. The only figure for the length of the main street mentioned in the actual excavation reports is the 3400 m that Lassus records, which roughly matches the distance from the outer south-western wall to the presumed location of the outer north-eastern wall.[120] Jean-Pierre Callu devoted an article to this, trying to arrive at a sensible estimate based on Wilber's map and ancient sources, but finds them hard to reconcile, because Malalas and Dio Chrysostom suggest figures nearly twice as high. The only thing we can say is that the idea that a section of the colonnaded street extended beyond the walls fits well with the remarks by Casana and Wilkinson.

Of course, without further excavations, there is no knowing exactly where the colonnades ended or began, and whether they only extended to the north-east and/or south-west. Considering Malalas' remark that the town extended a mile towards the south, Callu points out that wherever we locate the Cherubim Gate in the Tiberian wall, it must have been far less than 1479 meters from the Daphne Gate in the Theodosian wall, thus suggesting that even then the Daphne Gate did not indicate the limit of the city.[121]

There are also some indications for an extension of the city at the western side of the Orontes. Of main interest here is the inscription published by Feissel in 1985, found on the western side of the river, about 500 meters from the bridge along the road to Alexandretta. It mentions the digging of a canal 2.5 km long to supply the fullers' quarter in 73/74 C.E., by inhabitants of various quarters of the city.[122] While such forms of production were not necessarily located outside the city proper, it could be imagined that workshops related to metalworking were located on the west bank, as there are clear signs of mining activities 8 km from the city in that direction, around Kisecik in the Amanus mountains.[123] Beyond that, the only indication is the statement by Libanius, that when looking out from the Diocletianic palace, "there is a view worthy of the emperor, with the river flowing below and the suburbs feasting the eyes on all sides."[124]

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[119] Jean-Charles Balty, 'Apamée: mutations et permanences de l'espace urbain, de la fondation hellénistique à la ville romano-byzantine', *Bulletin d'études orientales* 52 (2000): 174.
[120] Lassus, Elderkin, and Stillwell, *Antioch-on-the-Orontes*, 5:146.
[121] Malalas 346.8 ff, referred to in Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*, 612; Jean-Pierre Callu, 'Antioche La Grande : La Cohérence Des Chiffres', *Mélanges de l'École Française de Rome. Antiquité* 109, no. 1 (1997): 150–52, especially notes 132, 137 and 140.
[122] Denis Feissel, 'Deux Listes de Quartiers d'Antioche Astreints Au Creusement d'un Canal (73-74 Après J.-C.)', *Syria* 62, no. 1 (1985): 77–103, https://doi.org/10.3406/syria.1985.6922; Getzel M. Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 1st ed. (Berkerley: University of California Press, 2006), 84, 93 note 27.
[123] Fokke Gerritsen et al., 'Settlement and Landscape Transformations in the Amuq Valley, Hatay', *Anatolica* 34, no. 0 (31 May 2008): 262, https://doi.org/10.2143/ANA.34.0.2031568.
[124] Libanius, *Or.* 11.239.

While the exact size of the suburbs remains unclear, it should at least be possible to make an estimate of their size (Figure 12), fully acknowledging that future research could change these figures significantly. Towards the north-east, if we were to count the whole area between the river and the mountains, the extent of two kilometres mentioned by Casana would add an area of over 260 hectares. This figure is unreasonably high, as it is far more likely that the suburbs extended only a limited distance from the main road, if we compare for instance the suburbs of sixteenth-century Damascus and Aleppo, where the suburbs running along main trade routes extended at most a 100 meters on either side outside the city wall.[125] And we might just as well expect only linear settlement along the road itself, while further from the road only farms were located, organised along the centuriated grid mentioned above. For the full two kilometres, this would put the inhabited size of the suburbs in a far lower range of 20 to 60ha. Taking the fifth-century houses at one kilometre distance as the minimum known extent, we would end up with a minimum figure of 10 to 30 hectares for the north-eastern suburbs.

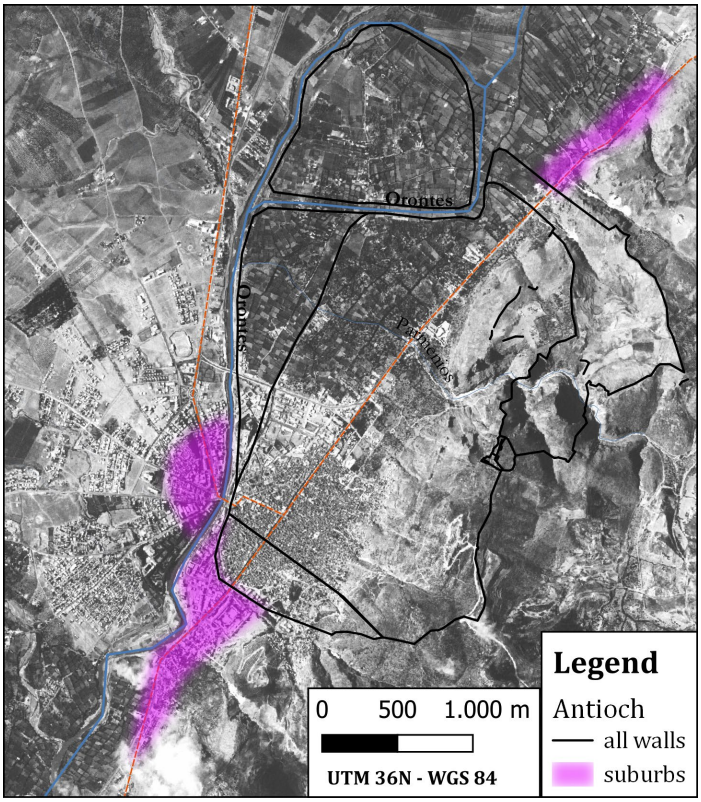

Figure 12 Possible extent of suburbs

Towards the south, if we were to take the full width between the river and the mountains, for the full length of Malalas' Roman mile, we would end up with at most 75 hectares. Of course, here too it is far more likely to similarly expect that settlement was located mostly along the road, and that further from the gates the width of the suburbs would decrease, giving a far lower figure of 15 to 45 hectares. It is also important to note that it is equally possible that in the second century not even the area between the Cherubim Gate and the Phyrminios was fully covered by suburbs, let alone the area beyond it. The city may quite well only have expanded in that direction in the three and a half centuries up to Malalas' writing. A minimum of 15 hectares and a (very unlikely)

[125] André Raymond, 'La Conquête Ottomane et Le Développement Des Grandes Villes Arabes', *Revue de l'Occident Musulman et de La Méditerranée* 27, no. 1 (1979): figs 2, 3, https://doi.org/10.3406/remmm.1979.1845.

maximum of 110 (the area up to the Theodosian wall, plus the 75 hectares mentioned above) indicates the far greater uncertainty in this direction.

Concerning the western quarter, nothing can be said with any degree of certainty. Going by the assumption that this suburb may have been similar in size to the other suburbs, a range between 10 and 110 hectares would be just as good an estimate as any for the western urban extension, with 30 to 60 hectares as a suggested 'likely' range.

So, as a total, the suburbs could range somewhere between 30 and 280 hectares, which, again, indicates how tentative these figures are. For the total buildable area, adding the 450 to 510 hectares of the city proper, we end up with 480 to 795 hectares. In what follows, we will maintain a 'safe' minimum estimate for the city at 450 ha, with 50 hectares for the suburbs, giving us 500 hectares for the built-up area of Antioch.

1.2.1.2 Apamea, Laodicea and Seleucia Pieria

Of the three remaining cities of the Tetrapolis, Apamea is the best studied. Belgian investigations started after an initial exploration of the site by Franz Cumont in 1928. From the 1960s investigations were led by Jean-Charles Balty, and from 2001 onwards by Didier Viviers. Up to the breakout of the civil war in 2011, the Belgians undertook 43 archaeological missions.[126] Of course, other teams were active as well on the site, such as the Syrian-American mission that studied the theatre from 2008 to 2010.[127]

The city of Apamea lies around the eastern side of Qalat al Madiq, a large Medieval Islamic hilltop fortress. The hill itself shows evidence of habitation from the Neolithic onwards, and was a sizeable fortified settlement throughout the Bronze Age. This tell was in use during the Hellenistic period from the early third century B.C.E. at the latest, likely functioning as a citadel as well.[128] With Alexander's conquest, a garrison of Macedonian veterans was installed, and sometime in the following century a city wall was built around the, by that time already sizeable, city.[129] As Strabo mentions, Apamea housed the Seleucid royal stables, military headquarters

[126] Agnès Vokaer and Didier Viviers, 'Travaux de La Mission Archéologique à Apamée de Syrie XLIIIe Campagne (2009)', *Revue Belge de Philologie et d'histoire* 88, no. 1 (2010): 113–49, https://doi.org/10.3406/rbph.2010.7795.
[127] Cynthia Finlayson, 'New Excavations and a Reexamination of the Great Roman Theater at Apamea, Syria, Seasons 1–3 (2008–2010)', *American Journal of Archaeology* 116, no. 2 (2012): 277–319.
[128] M. Gelin, 'Qalaat el Moudiq, citadelle d'Apamée de l'Oronte. Résultats des travaux de 2004', in *Résultats du programme de formation à la sauvegarde du Patrimoine Culturel de Syrie 2002-2004: Cultural Heritage Training Program*, by Jānīn 'Abd al-Masīḥ, Documents d'archeologie Syrienne ; 11 345386078 (Damas: Ministère de la Culture, Direction Général des Antiquités et des Musées, 2007), 363–88.
[129] Jean-Charles Balty, 'Apamée et la Syrie du Nord aux époques hellénistique et romaine.', *Revue du monde musulman et de la Méditerranée* 62, no. 1 (1991): 15–26, https://doi.org/10.3406/remmm.1991.1518; Pierre Leriche, 'Le Phénomène Urbain Dans La Syrie Hellénistique', *Bulletin d'études Orientales* 52 (2000): 99–125.

and a large part of the army.[130] Additionally, the Seleucids imported 500 elephants and kept them at Apamea, where the marshy Ghab Valley made a good habitat for them. In fact, as Pfälzner argues, the valley had originally been a habitat for indigenous elephants up to the Iron Age II period, when they presumably became extinct due to hunting activities.[131]

As a Roman city, Apamea grew to enclose 250 to 255 hectares within its walls.[132] The city was the site of a large and well-known sanctuary of Zeus Belos, and housed an important Neoplatonist school. And under the Severans, Apamea regained some of its strategic importance, as it became the base of operations for the II Parthica. With all the research that took place in the city, we have quite a good insight into the history and monumentality of this city, showing a full complement of all status buildings associated with major cities. Furthermore, it is clear that (like in Antioch), a major reconstruction effort had taken place after the earthquake of 115 C.E., with both local and imperial investments, and hints at a rich local aristocracy.[133] At the same time, when it comes to urban housing, a number of large elite residences have been uncovered, but little is known of lower class living. As Charles Balty wrote in 1988: "the plan of the inhabited areas in the excavated zones does not allow us to calculate the total population [...]'.[134]

In the case of Laodicea, modern Latakia, only an old study of the walls and a paper on the potential survival of the old city grid in the modern street pattern have shed some light on its size, giving a walled area of around 220 hectares, of which around 170 may potentially have been built up.[135] It was clearly an important city in the region. As a Hellenistic foundation at a pre-existing village, it was already a major city during the Hellenistic period. Under Roman rule it kept its privileges (*hiera kai asylos kai autonomos*), struck coins, and was granted colonial and *metropolis* status by Septimius Severus after having revolted against Pescennius Niger. This grant was also accompanied by a large reconstruction effort, as its revolt was severely punished

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[130] Strab., ed. A. Meineke (Leipzig: Teubner, 1877), 16.2.10.
[131] Peter Pfälzner, 'The Elephants of the Orontes', *Syria. Archéologie, Art et Histoire*, no. IV (1 December 2016): 159–82, https://doi.org/10.4000/syria.5002.
[132] Jean-Marie Dentzer et al., 'Formation et développement des villes en Syrie du Sud de l'époque hellénistique à l'époque byzantine : les exemples de Bosra, Suweida, Shahba', in *Hauran V : la Syrie du sud du néolitique à l'antiquité tardive : recherches récentes : actes du colloque de Damas 2007. Vol. I.*, by Michel al-Maqdissi et al., Bibliothèque archéologique et historique ; t. 191. 852438184 (Beyrouth: Institut Français d'Archéologie du Proche-Orient, 2010), 193–170; Jean-Charles Balty, 'Claudia Apamea. Données Nouvelles Sur l'histoire et La Topographie d'Apamée', *Comptes Rendus Des Séances de l'Académie Des Inscriptions et Belles-Lettres* 144, no. 1 (2000): 459, https://doi.org/10.3406/crai.2000.16134.
[133] Jean-Charles Balty, 'Apamea in Syria in the Second and Third Centuries A.D', *Journal of Roman Studies* 78 (1988): 91–96.
[134] Balty, 96; Balty, 'Apamée et la Syrie du Nord aux époques hellénistique et romaine.'
[135] Sauvaget, Mouterde, and Mouterde, 'Le Plan de Laodicée-Sur-Mer'.

by Niger's troops. In fact, the reconstruction was paid for by Antioch, as a punishment imposed by Septimius, as Antioch had sided with Niger.[136]

The city certainly had a sizeable harbour, including a lighthouse known from coinage. It had all the monuments and infrastructure one would expect in a major city as well: temples, an aqueduct granted by Herod the Great, baths and a large theatre. Antoninus Pius had a forum (not an agora, as typical for the region, but actually explicitly called a forum, φόρον, μέγα θίαμα) and baths constructed in the city.[137] And in the reconstruction by Septimius another public bath, a six-sided colonnade, a *kynegion* (a structure for animal fights, perhaps an amphitheatre) and a hippodrome were built. The still surviving tetrapylon is also dated to the Severan period.[138] In fact, in later times Laodicea was well known for its hippodrome and its races.[139]

Seleucia Pieria is another Hellenistic (re)foundation which had also been an important centre throughout the Hellenistic period. It was a strongly fortified port city, and when it was captured by the Ptolemies, they managed to maintain their occupation for several decades, despite the very short distance to Antioch. In the Roman period it stood out for acting as the base of the *classis Syriaca*.[140]

Seleucia has a rather limited archaeological record, but there are visible remains of its fortifications, harbour and the tunnels and canals dug to prevent the silting up of the harbours. Furthermore, the agora was identified, including porticoes with rows of shops and warehouses or *horrea*.[141] At the time of the excavations in Antioch, some work was also done in Seleucia, including excavations of a temple, residences and shops. Additionally, results of geophysical surveys in the early 2000s were published by Pamir, including a map of the lower town. Combined with the outline of the upper town based on Stillwell 1941, we get an idea of the size

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[136] Klaus-Peter Todt and Bernd Andreas Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, Tabula Imperii Byzantini 15 (Verlag der Österreichischen Akademie der Wissenschaften, 2014), II.1429-1449, http://hw.oeaw.ac.at/7090-7.

[137] Malalas, *Chron.*, ed. L. Dindorf (Bonn, 1831), XI.280.

[138] Ingeborg Kader, *Propylon Und Bogentor: Untersuchungen Zum Tetrapylon von Latakia Und Anderen Frühkaiserzeitlichen Bogenmonumenten Im Nahen Osten*, Damaszener Forschungen 7 (Mainz am Rhein: von Zabern, 1996).

[139] Todt and Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, II.1443-1444; Malalas, *Chron.*, XI.294.

[140] Denis van Berchem, 'Le port de Séleucie de Piérie et l'infrastructure logistique des guerres parthiques', *Bonner Jahrbücher*, 1985, 51–53, https://doi.org/10.11588/bjb.1985.0.71899; Todt and Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, II.1712-1713.

[141] Hatice Pamir, 'Recent Researches and New Discoveries in the Harbours of Seleucia Pieria', in *Häfen Und Hafenstädte Im Östlichen Mittelmeerraum von Der Antike Bis in Byzantinische Zeit: Neue Entdeckungen Und Aktuelle Forschungsansätze ; Istanbul, 30.05.-01.06.2011. 1 1*, ed. Sabine Ladstätter, Felix Pirson, and Thomas Schmidts, vol. 1, BYZAS 19 (İstanbul: Ege Yayınları, 2014), 177–98.

of the city (Figure 13). Pamir gives 300 hectares for the whole city.[142] However, when georeferencing the maps, the lower town appears to have covered 88 hectares. The upper town is less clearly mapped, but appears to be at most 160 hectares in size. 250 hectares seems therefore a more likely (upper) estimate for the walled area. This includes the inner harbour, taking up 13.5 hectares of the inhabitable area, and what is marked as the 'military area' on Pamir's map, around 5.5 hectares, next to the (later) exterior harbour. Additionally, it remains to be seen how densely the slopes of the upper city were actually inhabited; as Pamir describes it, the upper town mainly served as a residential area, with most commercial and monumental structures located in the lower town.[143] But as with Antioch, the walled area consists mostly of hard to develop, heavily sloped and uneven terrain, with up high the acropolis. As described by Rey-Coquais, we see "Luxurious Roman villas […] arranged in tiers along the slopes of the upper town."[144] As such, it is unlikely more than 25% of the upper town was actually built-up. In total, I estimate 130 hectares of actual built-up area in the whole city.

[142] Todt and Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, 1717; Pamir, 'Recent Researches and New Discoveries in the Harbours of Seleucia Pieria'; Hatice Pamir, 'The Orontes Delta Survey', in *The Amuq Valley Regional Projects*, ed. K. Aslıhan Yener, Stephen Batiuk, and Robert Kriech Ritner, vol. 1 (Chicago: Oriental Institute of the University of Chicago, 2005), 67–98; Pamir, Brands, and Nishiyama, 'Hatay Yüzey Araştırmaları 2007: Antakya, Samandağ, Yayladığı ve Altınözü'.
[143] Pamir, 'The Orontes Delta Survey', 74.
[144] Jörg Wagner, 'Seleukeia Pieria Hafenstadt von Antiocheia', in *Der Neue Pauly*, New Pauly Online (Brill, n.d.), 11:355-358, https://referenceworks.brillonline.com:443/entries/der-neue-pauly/seleukeia-e1107200; Jean-Paul Rey-Coquais, 'Seleucia Pieria', in *The Princeton Encyclopedia of Classical Sites*, ed. Richard Stillwell and William L. MacDonald (Princeton, NJ: Princeton University Press, 1976).

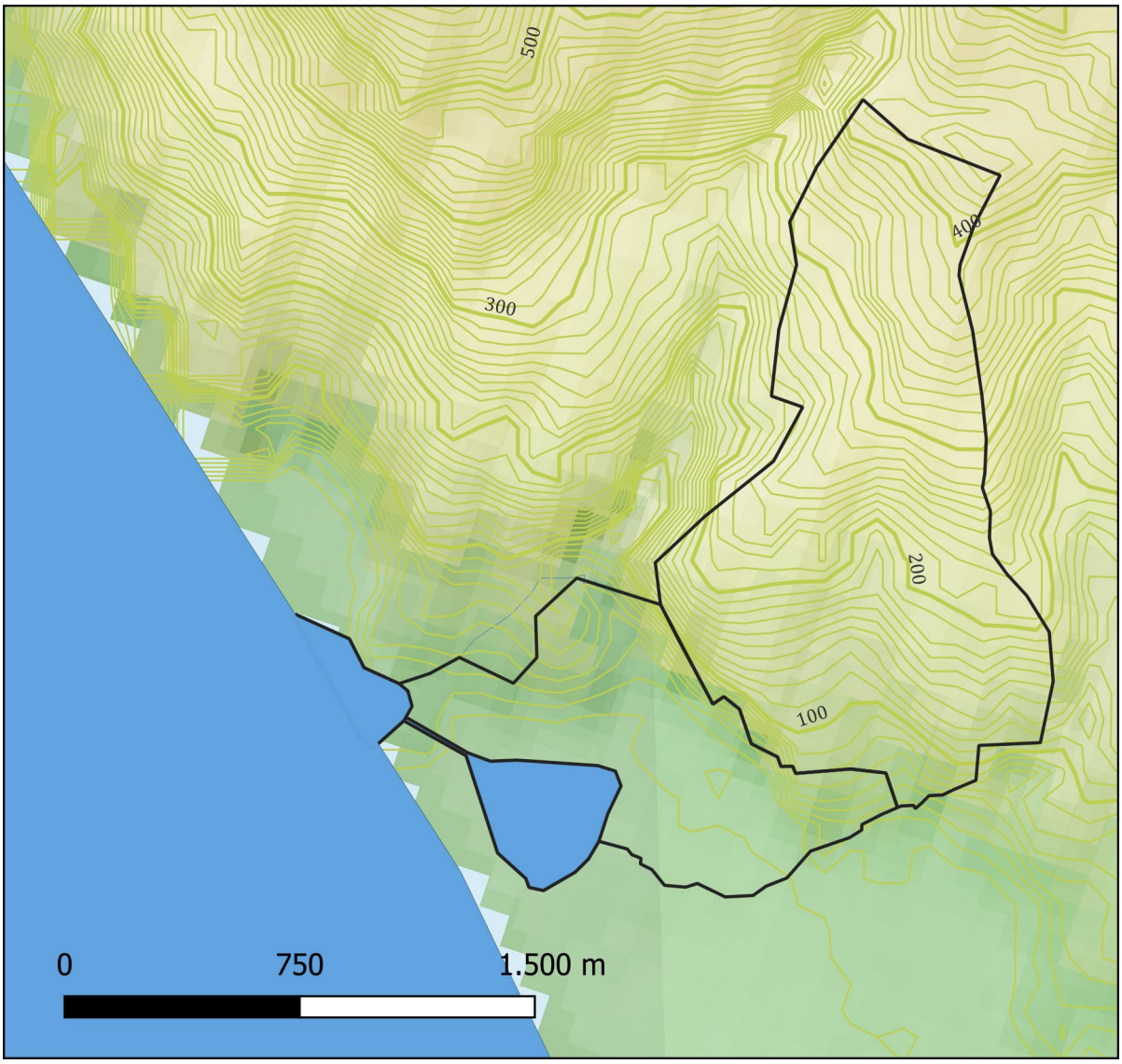

Figure 13 Seleucia Pieria - harbours, lower and upper town

1.2.2 Coastal cities

Our knowledge is very limited where it concerns the northern coastal cities, located mostly within the borders of modern Syria (Figure 14). The names of several places are known from Pliny, Strabo and Ptolemy. Archaeological evidence is poor. Some places have only seen a simple sondage (for example Paltos), while others like Byblos and Tyre have been thoroughly studied, but here we are already looking further south – and in these cases note Gatier's remarks on the

rather less than optimal state of publication of the work done by Maurice Chéhab.[145] As such, south of Latakia, for most of the settlements down to Byblos, information on city sizes is lacking, except perhaps for Arados.

This island city, when fully built up, could have had a size of at most 16 hectares. It had been a very successful city from the Iron Age onwards, and despite some of its dependent settlements gaining independence, by the later Hellenistic period it seems to have reasserted its authority over several places on the mainland.[146] Archaeologically, its continued habitation up to the present greatly limits what can be learned of the ancient city. During the Roman period, written sources are rather silent concerning the city. Strabo does mention that in his time, the city was so populous that the houses were several stories high, and Pomponius Mela mentions that unlike other places, in Arados people were allowed to build their roofs higher than the roofs of their neighbours – the exception makes sense as on this island city, lateral expansion would have been impossible.[147]

On the mainland opposite to Arados, the city of Marathos (Amrit) contains a sixth-century B.C.E. temple and a stadium from the third century B.C.E., and various workshops, a second temple and settlement's harbour are known as well.[148] A limited magnetic survey undertaken before the Syrian civil war located a warehouse close to the excavated artisanal quarter, and indicated dense occupation on the tell. Despite it not having been overbuilt, like many other places it has been studied only to a limited degree.[149] Like Arados, it appears to have retained its vitality into the Hellenistic period, but in his study of Arados and its hinterland, Jean Paul Rey-Coquais offers the idea that throughout the Roman period Marathos may have declined in favour of Antarados, modern Tartus.[150] There are good indications that the city was already struggling by the end of the Hellenistic period. Strabo describes Marathos as having lain in ruins.[151] Possibly this could be

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[145] Pierre-Louis Gatier et al., 'Mission Archéologique de Tyr - Rapport Préliminaire 2008-2009', *Bulletin d'Archéologie et d'Architecture Libanaises* 14 (2010): 140; See for an overview of literature available for the Phoenician cities: Élodie Guillon, 'Les arrière-pays des cités phéniciennes à l'époque héllénistique, IVe siècle - IIe siècle ap. J.-C : approches historiques et spatiales d'une aire géoculturelle' (Ph.D., Université Toulouse le Mirail - Toulouse II, 2013), https://tel.archives-ouvertes.fr/tel-00991865/document; Nicolas Carayon, 'Les Ports Phéniciens et Puniques. Géomorphologie et Infrastructures' (Theses, Université Marc Bloch - Strasbourg II, 2008), https://tel.archives-ouvertes.fr/tel-00283210.
[146] Jones, *The Cities of the Eastern Roman Provinces*, 257.
[147] Jean-Paul Rey-Coquais, *Arados et sa pérée aux époques grecque, romaine et byzantine : recueil des témoignages littéraires anciens, suivi de recherches sur les sites, l'histoire, la civilisation*, Bibliothèque archéologique et historique. 852438184 (Paris: PGeuthner, 1974), 56–58; Strab., 16.2.14; Mela, *De Chron.*, n.d., II.7.
[148] Michel Al Maqdissi and Christophe Benech, 'The Spatial Organization of the Phoenician City of Amrith (Syria)', *ArcheoSciences. Revue d'archéométrie*, no. 33 (suppl.) (30 October 2009): 209, https://doi.org/10.4000/archeosciences.1596.
[149] Al Maqdissi and Benech, 'The Spatial Organization of the Phoenician City of Amrith (Syria)'.
[150] Rey-Coquais, *Arados et sa pérée aux époques grecque, romaine et byzantine*.
[151] Strab., 16.2.14.

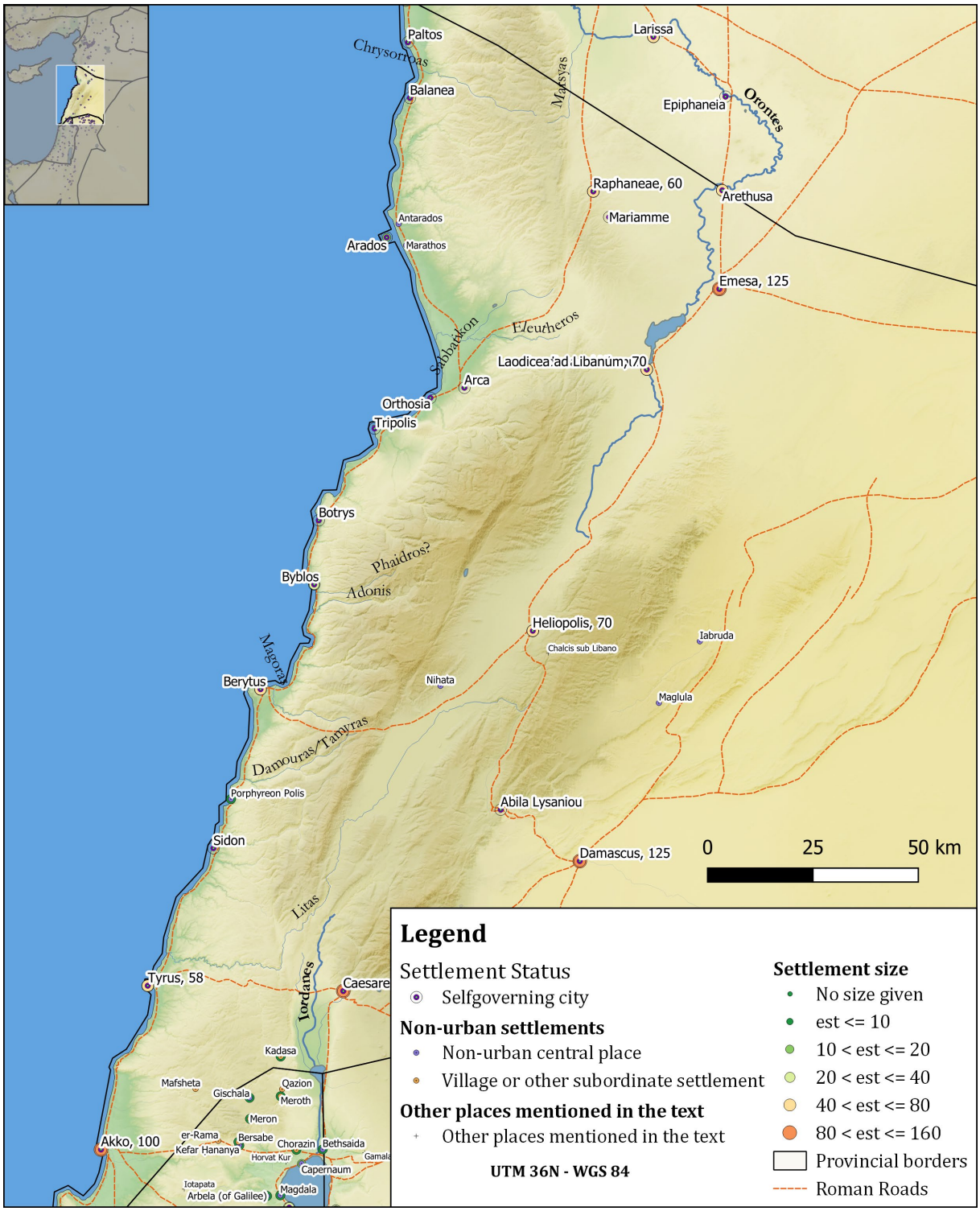

Figure 14 Coastal and inland cities

the result of a struggle between Arados and Marathos in the second century B.C.E., as described by Diodorus Siculus.[152] But, as both Rey-Coquais and Jones indicate, the coinage of the city only ended several decades later, around 90 B.C.E., suggesting a later incident such as the two-year

[152] Diod., n.d., 33.5.

long siege of Arados.[153] Furthermore, coinage started again in the same century under Roman rule, to end only by the second century C.E., so clearly it recovered from its previous decline. While it is clear that by the sixth century, Antarados was mentioned in the bishoprics lists, while Marathos wasn't, without further archaeological data there is no way to determine the city's trajectory. Antarados is even less well-known, since continuous habitation and numerous sieges and conquests from the Byzantine period onwards have not done the archaeological record much good.

Other coastal places within the former Aradian territory, such as Gabala, Paltos and Balanea, were described as small towns by Strabo, but considering their coinage likely all had urban status. Simyra clearly lost its status, if it remained inhabited at all. Carne, just north of Antarados, likewise is not mentioned anymore in sources after Strabo.[154]

On the southern side of the plain of Akkar, the largest coastal plain in this area, the situation is the same. Possibly the main settlement on this side of the plain, lying slightly inland is Arca, also known as Caesarea sub Libano. It received colonial status under Elegabalus as advertised by the city on its coinage.[155] It had been an independent Iturean principality before being annexed into Syria in the middle of the first century C.E. Archaeologically, the well-studied tell site is rich in Bronze Age remains, but offers very little insight into the Roman period.[156] On the coast, Orthosia is another typical small tell-based port town with its placename already mentioned in 19th-18th century B.C.E. sources. It is quite unknown however in the Roman period besides its mention in Strabo, and was never excavated.[157] Nonetheless, we have multiple issues of coinage from the first to third centuries C.E. A little further south along the coast, Tripolis is a similarly old port city with few known remains for the Roman period itself, with mostly earlier finds from the Late Bronze Age and Persian periods, and from late antiquity onwards. The exact location of the three urban cores that made up Tripolis are also still debated.[158] Its continued coinage suggests urban status. And Malalas mentions the restoration in the fifth century by Marcian of its public baths, aqueduct and a building known as the "Phakidion".[159]

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[153] Jones, *The Cities of the Eastern Roman Provinces*, 257–58; Rey-Coquais, *Arados et sa pérée aux époques grecque, romaine et byzantine*, 135–41.
[154] Rey-Coquais, *Arados et sa pérée aux époques grecque, romaine et byzantine*, 119.
[155] 'Roman Provincial Coinage', VI 8227 onwards, accessed 5 November 2022, https://rpc.ashmus.ox.ac.uk/.
[156] Sartre, *The Middle East under Rome*, 77.
[157] Nicolas Carayon, 'Les Ports Phéniciens Du Liban. Milieux Naturels, Organisation Spatiale et Infrastructures', *Archaeology and History in Lebanon* 36 (2012): 4ff.
[158] Ḥassān Salamé-Sarkis, *Contribution à l'histoire de Tripoli et de sa région à l'époque des Croisades: problèmes d'histoire, d'architecture et de céramique*, Bibliothèque archéologique et historique. 852438184 (Paris: Librairie orientaliste P. Geuthner, 1980); Carayon, 'Les Ports Phéniciens Du Liban. Milieux Naturels, Organisation Spatiale et Infrastructures'.
[159] Malalas, *Chron.*, 14.367.

Further south along the coast, in Sidon, only a very limited area has been excavated. While the excavations, showing a 13th-century B.C.E. temple and a large multi-room building from the Early Bronze Age, are clearly of value in confirming the city's long history, they cannot give any hints towards the size of the city.[160] On the other hand, what can be seen today of the Medieval centre suggests a rather compact town of 16 hectares. Aerial pictures from the 1930s show that at that time, the city was not much larger.[161] With the Roman baths lying outside the Medieval walls, it is of course quite possible that the Medieval walled city was far more compact than the Classical site, similar to Antioch, where already under Justinian the walled city was quite reduced compared to earlier periods.

Only Berytus, Byblos and Tyre reveal a little more, suggesting that we should not expect the other places to be particularly large. An indication might come from Jiyeh, which the excavators suggest should be identified with Porphyraeon, measuring around or somewhat over 7.7 hectares.[162]

Of the better studied cities, Byblos is a site with spectacular standing remains from several periods, including a wonderful 12th century citadel. Like the other port towns, it has a very long pre-Roman history, and was a major Bronze Age port city (albeit only 5 ha in size).[163] It was quite thoroughly studied in the 1860s by Ernest Renan, and by Maurice Dunand in the twentieth century.[164] It is hard to determine the extents of the settlement in this period. With Roman period finds and monuments (theatre, temples, a colonnaded street and a nymphaeum) throughout the lower medieval Old Town and the archaeological zone on the tell, we can expect a minimum size of 20 hectares.[165] Depending on whether the Roman city extended beyond those 20 hectares, it is unlikely that it would have extended beyond the necropoleis indicated by

[160] Claude Doumet-Serhal, 'Sidon: British Museum Excavations 1998-2003', *Sidon: British Museum Excavations 1998-2003*, no. 18 (2003): 2–19.
[161] Antoine Poidebard, *Sidon, aménagements antiques du port de Saïda : étude aérienne, au sol et sous-marine, 1946-1950* (Beyrouth: Ministère des Travaux Publics, 1951).
[162] Mariusz Gwiazda, 'Economy of Hellenistic, Roman and Early Byzantine Settlement in Jiyeh (Porphyreon), Lebanon', *Archeologia* 62, no. 2011–2012 (2014): 34.
[163] Carayon, 'Les Ports Phéniciens Du Liban. Milieux Naturels, Organisation Spatiale et Infrastructures'.
[164] Ernest Renan, 'Campagne de Byblos', in *Mission de Phénicie*, vol. 1 (Paris: Impr. Impériale, 1864), 153–359; Maurice Dunand, *Fouilles de Byblos. T. 1: 1926-1932*, Bibliothèque archéologique et historique ; 24. 852438184 (Paris: Librairie Orientaliste Paul Geuthner, 1937).
[165] Jean Lauffray, 'Une Fouille Au Pied de l'acropole de Byblos', *Bulletin Du Musée de Beyrouth* 4 (1940): 7–36; Jean-Paul Deroin, Rania Bou Kheir, and Chadi Abdallah, 'Geoarchaeological Remote Sensing Survey for Cultural Heritage Management. Case Study from Byblos (Jbail, Lebanon)', *Journal of Cultural Heritage*, Beyond the modern landscape: Earth Observation to see the unseen, 23 (1 March 2017): 37–43, https://doi.org/10.1016/j.culher.2016.04.014.

Renan, putting a firm upper limit of 60 hectares to the city, and 40 hectares as an acceptable estimate.[166]

Berytus became a very prominent city in the Roman period. It was one of the few early recipients of colonial status in the region. Initially its territory seems to have stretched well inland, including parts of the Beqaa Valley, until Baalbek was given urban rights of its own. From the third century it became a centre for the study of Roman law.[167] Although, like many of the other places, its modern habitation has limited excavation possibilities, the reconstruction effort after the Lebanese civil war ended in 1990 created opportunities that were taken up relatively successfully – see Perring for an overview, as well as Curvers and Stuart.[168] Everything points to a city endowed with a wide complement of monuments, a city grid and sizeable harbours. Based on the streets and locations of remains, the city may have measured between 50 to 70 hectares in size. As such, it was indeed a rather large city, but overshadowed by the northern and inland cities of the region, including eventually its former dependency, Baalbek.[169]

Tyre likewise seems to have fallen within the same size range, about 60 hectares, judging from satellite imagery and site maps. Dependent on how much of the area between the old island and the hippodrome was built up, this could have been as much as 90 hectares. Despite large parts of the city having been excavated, on this point nothing definitive has been written. Also, the finds mostly show the vibrant city of the fourth century C.E., but remain quite unclear for the earlier period.[170]

A recent study by Guillon explored the possibilities of defining a hierarchy between the cities using statistical and geographical models. Although set in the centuries leading up to, but not including the Roman period, it nonetheless gives a good overview of the Phoenician coastal zone. Because of the rather limited dataset, her use of statistical methods seems somewhat superfluous, as a structured discussion of the materials would likely have given quite the same insights. The results of her component and hierarchy analyses mainly highlighted differences in the intensity of research at the different locations.[171] Similarly, the weights assigned to the settlements for her gravity model are dependent on categories such as the presence of cult

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[166] Ernest Renan and Thobois, *Mission de Phénicie* (Paris: Impr. Impériale, 1864), Pl. XIX.
[167] Linda Jones Hall, *Roman Berytus : Beirut in Late Antiquity* (London etc: Routledge, 2004).
[168] Dominic Perring, 'Archaeology and the Post-War Reconstruction of Beirut', *Conservation and Management of Archaeological Sites* 11, no. 3–1 (1 November 2009): 296–314, https://doi.org/10.1179/175355210X12747818485529; Hans H Curvers and Barbara Stuart, 'The BCD Archaeology Project 2000–2006', *Bulletin d'Archéologie et d'Architecture Libanaises* 9 (2007): 189–222.
[169] Klaus Stefan Freyberger and Friedrich Ragette, 'Stadt des Jupiter Helipolitanus: Baalbek als Kultzentrum in römischer Zeit', in *Baalbek : im Bann römischer Monumentalarchitektur*, by Margarete van Ess, Thomas Weber, and Stefanie Bahe (Mainz am Rhein: Von Zabern, 1999), 45.
[170] Gatier et al., 'Mission Archéologique de Tyr - Rapport Préliminaire 2008-2009'.
[171] Guillon, 'Les arrière-pays des cités phéniciennes', 346, 377.

buildings, industrial zones, tableware and amphorae. As became quickly evident during the data collection for her study, these elements are very likely to have been present even at very small and remote settlements, but nonetheless are liable not to be found, identified or published in the first place, thus significantly impacting any analysis dependent upon them.

The main strengths of her study instead lie in highlighting how places like Gabala, Marathos and Dor played important roles in the urban network. They were secondary to the large cities, but relevant in their specific roles, either controlling territory or main routes from the coast inland.[172] Of especial interest is how in the Roman period the main cities remained more or less as stable in their positions, as they had done in all preceding periods, but the fates of these second-order settlements shift. In the south, Dor was entirely overshadowed by its neighbours Caesarea and Akko, and in the north Simyra disappeared, with Arca controlling the plain of Akkar; as discussed, Marathos appears to have lost its role to Antarados.

The larger coastal cities were visibly limited to the wider coastal plains, as is clear for Seleucia, Laodicea, Berytus and Akko, and to a lesser degree Tyre. In the cases of Seleucia, Laodicea and Akko, this plain is also linked to passes connecting the coast to inland areas. The plain of Akkar, the largest coastal plain, interestingly had its major settlements on the edges: Arados to the north, and Tripolis or Arca to the south. Before the Romans came to control it, Arca appears to have become an independent Iturean principality as well. Perhaps the primacy of sites along the edges of the plain was influenced by the favourable conditions for harbours at Tripolis and Arados, especially in comparison with the lack thereof along the plain.[173] Arados' control over the plain will certainly have contributed to its success in earlier periods.

At the very southern end of the Severan province of Syria Phoenice, we arrive at Akko, also known as Ptolemais. It was an early Roman colony, from Claudius onwards, hinting at its regional importance. In 56 C.E. it became the endpoint of a coastal road constructed by Nero all the way from Antioch. It also served as a Roman military staging point during the first Jewish war.[174] Unfortunately, little is known of the physical aspects of the city. Magen Broshi estimates its 'later Roman – Byzantine' (in this case meaning around 600 C.E.) size at 100 hectares.[175] This is a considerable size, but it is not unimaginable that the city grew to this extent. In comparison to other mentioned coastal cities, it had a comparatively large and uncontested coastal plain

[172] Guillon, 442–44.
[173] Carayon, 'Les Ports Phéniciens et Puniques. Géomorphologie et Infrastructures', 253–55.
[174] Fergus Millar, 'The Roman Coloniae of the Near East: A Study of Cultural Relations', in *Roman Eastern Policy and Other Studies in Roman History*, vol. 8, 1990, 23–30; Nadav Kashtan, 'Akko-Ptolemais: A Maritime Metropolis in Hellenistic and Early Roman Times, 332 BCE — 70 CE, as Seen through the Literary Sources', *Mediterranean Historical Review* 3, no. 1 (1988): 37–53, https://doi.org/10.1080/09518968808569536.
[175] Broshi, 'The Population of Western Palestine in the Roman-Byzantine Period'.

around it, and it would be the most directly accessible port servicing the cities of the Decapolis. Beyond a tell size of around 20 hectares, very little else can be said certainty.

1.2.3 The cities on the Orontes

Like the coastal area, the inland areas of the disintegrating Seleucid empire had become a patchwork of various independent cities and principalities by the time Pompey organised the Syrian province. Even the city of Apamea may have been ruled by a local dynast, Dexandros, honoured in an inscription by his great-grandson as the first priest of the province and friend and ally of Rome.[176] Initially, a number of these principalities became client kingdoms, such as the kingdom of Emesa, but over the course of the first century these were all annexed into the Roman province of Syria (Figure 14 and Figure 15).

1.2.3.1 Emesa and the former Emesene kingdom

Not Emesa, but Arethusa was probably the original capital of the kingdom of the Emesenes, founded by Seleukos I Nikator – possibly a rebranding of an existing settlement. After the battle of Actium it appears to have become independent, but perhaps it returned to Emesene control at a later point.[177] While the later foundation of Emesa seems to have grown to considerable prominence after becoming the new capital of the Emesenes, what few sources we have suggest that Arethusa retained its urban status. Pliny mentions the city's destruction, together with Larisa and Chalcis, in a series of otherwise undated wars, but clearly the city survived:[178] we find inscriptions of soldiers from Arethusa (and from Emesa) in an auxiliary cohort (*cohors I Hemesenorum*) stationed in Pannonia from the end of the second century to mid-third century C.E.[179] Later, Arethusa became the seat of a bishopric, and we know from Theodoret that bishop Mark of Arethusa destroyed a large pagan temple in the city and replaced it with a church – Julian ordered the temple either rebuilt or refunded, upon which Mark refused, fled, returned and was killed.[180] Based on a sketch by Sauvaget and compared with Corona imagery, the walled area can be estimated at around 60 hectares.[181]

Emesa itself does not appear to have been a Seleucid (re)foundation, and it is not quite clear indeed when it was settled. But it certainly was prominent enough by the first century B.C.E. as it became the new capital of the Emesenes.[182] Completely covered by modern habitation, only the

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[176] Fergus Millar, *The Roman Near East: 31 BC - AD 337* (Cambridge, MA: Harvard University Press, 1993), 261; Kropp, *Images and Monuments of Near Eastern Dynasts, 100 BC - AD 100*, 13.
[177] Butcher, *Roman Syria and the Near East*, 92.
[178] Plin., *HN*, trans. H. Rackham, Loeb Classical Library 371 (Cambridge, MA: Harvard University Press, 1950), 6.159; Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 101.
[179] John D. Grainger, *Syrian Influences in the Roman Empire to AD 300* (Routledge, 2017).
[180] Butcher, *Roman Syria and the Near East*, 380.
[181] J. Sauvaget, *Alep : essai sur le développement d'une grande ville syrienne, des origines au milieu du XIXe siècle*, Bibliothèque archéologique et historique (Paris: Paul Geuthner, 1941), 43.
[182] Grainger, *The Cities of Seleukid Syria*, 106,178.

layout of the old town of Homs gives a hint at the approximate size of the Roman city, which might have covered around 125 hectares. It started to mint coins from the second century C.E., and became a colony under the Severans.

Laodicea ad Libanum, a similarly sized site to Arethusa (at around 70 hectares walled area), lay south of Emesa at the location of ancient Qedesh, on tell Nebi Mend. A very interesting site for its pre-classical remains, it unfortunately offers little information for the Hellenistic and Roman periods[183]

Another interesting settlement in this area is Ḥamā, "called Amathe by the inhabitants, although the Macedonians named it Epiphania".[184] As so often, it is mostly overbuilt by modern occupation, but is well-known for its late-Roman noria sited on the Orontes. After its destruction in the 8th century B.C.E., it is not entirely clear if, but quite possible that, the site remained in use until it was resettled in the Hellenistic era. In any case, like Laodicea ad Libanum and Emesa itself, the initial late-third-century B.C.E. Hellenistic settlement was limited to the citadel, indicating similar military considerations as in other Hellenistic foundations, from Apamea to Dura Europos. [185] All indications are that throughout the Hellenistic and Roman era, it grew into a prospering town.

Outside of the cities, it appears that a major reorganisation of the landscape started to take place from the first century C.E. onwards. This included a general settlement orientation away from tell sites, along with the introduction of cadastrations and canalisation.[186]

1.2.3.2 Baalbek and the Beqaa

The Orontes springs forth from the Beqaa Valley (or the Massyas plain, as Strabo calls it), between the Lebanon and Anti-Lebanon mountain ranges. This valley became part of the territory of Berytus when the city became a colony.[187] Before that, the area had been part of the Iturean principality, ruled for ten years by Zenodorus (after his predecessor, Lysanias, had been

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[183] Peter J. Parr, *Excavations at Tell Nebi Mend, Syria. Vol. 1: Excavations at Tell Nebi Mend, Syria : Volume 1*, Levant Supplementary Series ; Vol. 16 270753168 (Oxford and Philadelphia: Oxbow Books, 2015); Sauvaget, *Alep*, 43; Note that in his sketch of the urban outlines, Kevin Butcher appears to have made an error in the scale of the drawing, drawing it at about the same size as Resafa. In fact, its north to south dimensions are over twice that of Resafa. See Butcher, *Roman Syria and the Near East*, 104.
[184] Jos., *Ant.*, trans. H. St. J. Thackeray, Loeb Classical Library 242, 1930, I.6.2; John Lund, 'Ḥamā in the early Hellenistic period. A review of the archaeological evidence', *Topoi. Orient-Occident* 4, no. 1 (2003): 253–68.
[185] Lund, 'Ḥamā in the early Hellenistic period. A review of the archaeological evidence', 262–63; Gunhild Ploug and Fondation Carlsberg, *Hama : Fouilles et Recherches, 1931-1938. III, 1: The Graeco-Roman Town*, Nationalmuseets Skrifter. Større Beretninger ; 9 044930704 (Copenhagen: Nationalmuseet, 1985); Grainger, *The Cities of Seleukid Syria*, 106.
[186] Graham Philip and Jennie Bradbury, 'Settlement in the Upper Orontes Valley from the Neolithic to the Islamic Period: An Instance of Punctuated Equilibrium', *Syria. Archéologie, Art et Histoire*, no. IV (1 December 2016): 377–95, https://doi.org/10.4000/syria.4966.
[187] Freyberger and Ragette, 'Stadt des Jupiter Helipolitanus', 45–67.

killed at Cleopatra's behest); this kingdom also included the Trachonitis. His banditry in the region led to a Roman military response. Upon Zenodorus' death, Josephus writes, his territory was granted to Herod.[188] Whether (parts of) the Beqaa already became Roman territory at that point, or only five years later, when the Berytian colony was created, is unclear: in either case there is much to say for Butcher's idea that this was done with the aim of policing this apparently restless area. As he points out, some twenty years later, as also shown in the famous census inscription from Apamea, military actions were still being undertaken against Itureans in the Lebanon mountains.[189]

The Iturean tetrarchy was ruled from a place also called Chalcis, 'the acropolis of Massyas' according to Strabo – usually defined as Chalcis sub Libano.[190] It is not quite certainly identified, a potential candidate being Anjar on the southern side of the Beqaa. This has been associated with Gerra, a large late-antique fort and early Islamic city.[191] Lacking archaeological finds, Roman coinage and later mentions in historical sources, Chalcis is considered to have lost relevance in the Roman period. It is possible that the territory of the former tetrarchy became an imperial estate, the *saltus Goinaiticus* mentioned in the bishopric lists.[192]

In any case, two centuries after Roman annexation, the main city in the area was without a doubt Heliopolis. Even today, the standing remains of the temples of this city do not fail to impress, with an enormous main temple dedicated to Jupiter Heliopolitanus. Construction on the complex seems to have begun around the creation of the colony of Berytus, but work on the complex may well have continued for two centuries. Perhaps somewhat earlier, what is now called the temple of the Muses was built – which could, however, also have been dedicated to the Tyche of the city or a local water deity.[193] An interesting question remains open: whether the building program

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[188] Jos., *Ant.*, XV.10; Simone Paturel, 'Landscapes of Conversion: Baalbek-Heliopolis from 100 Bc to 400 Ad' (Ph.D., University of Newcastle Upon Tyne (United Kingdom), 2014), 86, https://search.proquest.com/docview/1780289373/; Millar, *The Roman Near East*, 34–35.

[189] Millar, *The Roman Near East*, 35; Julien Aliquot, *La vie religieuse au Liban sous l'Empire romain*, Bibliothèque archéologique et historique ; t. 189. 852438184 (Beyrouth: Institut français du Proche-Orient, 2009), http://books.openedition.org/ifpo/1411; To make matters more interesting, (a part of?) the kingdom of Chalkis was granted around 43 C.E. to Herod V (of Chalkis), the brother of the Herodian Agrippa I, and subsequently to Agrippa II, who traded it back to Rome in 53 C.E. for parts of the Abilene. Only after his passing around 93 did the whole of the region definitely fall under Roman control Jones, *The Cities of the Eastern Roman Provinces*, 272–73.

[190] Strab., 16.2.10-11; 18.

[191] Ernest Will, 'Un Vieux Problème de La Topographie de La Beqā' Antique: Chalcis Du Liban', *Zeitschrift Des Deutschen Palästina-Vereins (1953-)* 99 (1983): 141–46; René Dussaud, *Topographie historique de la Syrie antique et médiévale*, Bibliothèque archéologique et historique (Beyrouth: Presses de l'Ifpo, 1927), 399–400, http://books.openedition.org/ifpo/3692; Aliquot, *La Vie religieuse au Liban*, 39–69 note 104; Jean-Paul Rey-Coquais, 'Les Frontières d'Hélioupolis ; Quelques Remarques', in *La Géographie Administrative et Politique d'Alexandre à Mahomet. Actes Du Colloque de Strasbourg 14-16 Juin 1979* (Brill, 1981), 169–75.

[192] Jones, *The Cities of the Eastern Roman Provinces*, 283; Sartre, *D'Alexandre à Zénobie*, 515.

[193] Paturel, 'Landscapes of Conversion', 116, 120–21.

was initiated and/or funded by Iturean, Emesene or even Herodian potentates, as suggested by for instance Freyberger and Ragette.[194] But what is clear is that in design the early temples are heavily influenced by styles common in Italy and Gaul, rather than in the East.[195] With all later expansions and additions of new temples, the temple grounds would come to cover 6 hectares in a city of about 75 hectares – a ratio perhaps only matched in the Roman Near East by Hatra (admittedly only under Roman rule for about 4 years).[196]

As was already stressed by other authors such as Aliquot, the Roman scale and style of Heliopolis, and the number of temples built in that period both in the surrounding countryside and the mountains, form a break with the pre-Roman past.[197] This break is matched by other developments particular to this region in the Roman period. In the first place, Heliopolis is one of the few 'new' Roman cities: as a developing religious centre it had still been part of the (rather large) territory of Berytus, but was granted independent urban status under the Severans – likely as a punishment for Berytus when the city sided against Septimius Severus with Pescennius Niger.[198] Before this elevation in status, it was one of the few clear examples of a functional city, that was urban in every aspect but name. By that time, it already had a size and monumental repertoire to match those of its mother city.

Its path to urbanity can be explained easily: considering both the size of the territory of Berytus, and the very physical barrier of the Lebanon mountain between the Beqaa Valley and the ruling city, the development of a new centre in the valley was to be expected. After the area was finally pacified, the region could flourish. Besides its central location in the valley, the new sanctuary at Baalbek gave it an edge over other possible settlements: it enhanced its centrality locally, as people would likely visit it for religious purposes. Considering the magnitude of the sanctuary, it probably attracted religious tourism and thus also enhanced its economic potential.

Secondly, Berytus' (former) territory stands out for the high number of Latin inscriptions. Among them, a considerable number of inscriptions come from veterans settled in the central Beqaa Valley – they were already being settled here in the years leading up to the actual foundation of the colony of Berytus, and may have been veterans from Actium.[199]

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[194] Paturel, 201–6; Freyberger and Ragette, 'Stadt des Jupiter Helipolitanus', 58.
[195] Paturel, 'Landscapes of Conversion', 122.
[196] Freyberger and Ragette, 'Stadt des Jupiter Helipolitanus'.
[197] Julien Aliquot, 'Sanctuaries And Villages On Mt Hermon During The Roman Period', in *The Variety of Local Religious Life in the Near East*, by Ted Kaizer (Brill, 2008), 95–96, https://doi.org/10.1163/ej.9789004167353.i-396.21.
[198] Millar, 'The Roman Coloniae of the Near East: A Study of Cultural Relations', 31–32; Sartre, *D'Alexandre à Zénobie*, 646 note 46: the exact date is still somewhat debated.
[199] Millar, 'The Roman Coloniae of the Near East: A Study of Cultural Relations'.

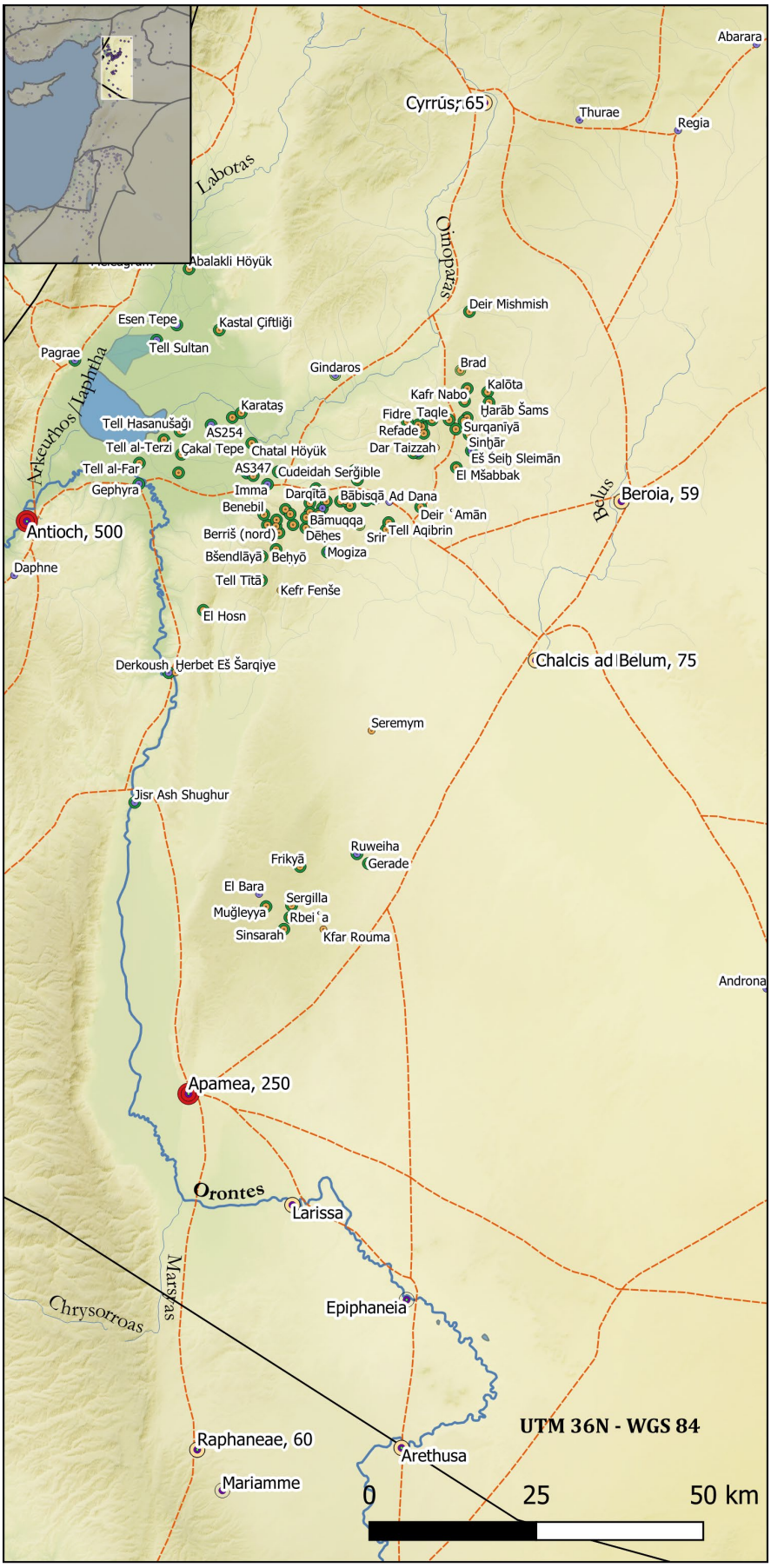

Figure 15 From Cyrrhus to the south

While elsewhere in the East, Greek remained the main language, or became so again over time, here we still find Latin being used in inscriptions two centuries later, only to be surpassed by Greek after the third century.[200] The degree to which Latin was more than only an official language used by those in power remains an open discussion. It is clear that in this area the Aramean language, which had been gaining ground over Phoenician from the 7th century B.C.E. onwards, remained in use at least for personal names. Whether it was also a spoken language is unclear, but should be considered likely.[201] In any case, the region is quite unique in the Near East for its strong Latin presence.[202]

1.2.4 Cyrrhus and other Seleucid garrison towns

On a lower order of magnitude than the four cities of the Tetrapolis, a number of moderately sized Seleucid foundations were also established in the Syrian province (Figure 15). Some of these have been studied in recent decades before the Syrian Civil War broke out, such as Larissa and Cyrrhus. The latter was investigated between the 1950s and 1990s by a French mission headed by Edmond Frézouls, and from 2006 to 2011 by a Syrian-Lebanese mission. In 2012, based on the notes of Frézouls, a volume was published on the second century theatre and on the general history of Cyrrhus. The city appears to initially have had a strongly military character. While not mentioned among the military foundations of Seleukos Nikator, it clearly provided troops at a later date, as by 221/220 B.C.E., 6000 soldiers from the region of Cyrrhus mutinied against Antiochos III. It seems at first to have continued this role throughout the Roman period; in the beginning of the first century C.E., a large number of inscriptions show the presence of the Legio X Fretensis, possibly moved there in relation to the annexation of Commagene in that period. Early in the second century, the town may also have served as a staging point for Trajan's invasion of Armenia.[203]

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[200] Paturel, 'Landscapes of Conversion', 188.
[201] Sartre, *D'Alexandre à Zénobie*, 877–80; Julien Aliquot, 'Les Ituréens et la présence arabe au Liban du IIe siècle a.C. au IVe sièclep.C.', *Mélanges de l'Université Saint-Joseph - Beyrouth* 56 (1999): 188–89; Lidewijde de Jong, 'Narratives of Roman Syria: A Historiography of Syria as a Province of Rome', Princeton/Stanford Working Papers in Classics, 2007.
[202] Millar, 'The Roman Coloniae of the Near East: A Study of Cultural Relations'.
[203] Edmond Frézouls, 'Cyrrhus et La Cyrrhestique Jusqu'à La Fin Du Haut-Empire', *Aufstieg Und Niedergang Der Römischen Welt* II, no. 8 (1977): 164–97; Jeanine Abdul-Massih, *Le théâtre de Cyrrhus: d'après les archives d'Edmond Frézouls* (Beyrouth: Institut français du Proche-Orient, 2012); Jeanine Abdul-Massih, Christophe Benech, and Mathilde Gelin, 'First results on the city planning of Cyrrhus (Syria)', *ArcheoSciences. Revue d'archéométrie* n° 33 (supp), no. 1 (1 March 2009): 201–3; Shaker Al Shbib, 'Les Fortifications de La Ville de Cyrrhus', in *Territoires, Architecture et Matériel Au Levant: Doctoriales d'archéologie Syrienne. Paris-Nanterre, 8-9 Décembre 2011*, ed. A. Le Bihan et al. (Beyrouth: Presses de l'Ifpo, 2012); Todt and Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, 1412–21; Nigel D. Pollard, *Soldiers, Cities, and Civilians in Roman Syria* (Ann Arbor (Mich.): University of Michigan Pr., 2000), 261–62.

In line with what Cumont had suggested in 1917, Frézouls assumed that with Septimius Severus, the shifting border with Persia and the new road to the east by Hierapolis, the military function of the city declined, and with it, the fortunes of the city as a whole.[204] If that is the case, at least the family living in a third century house uncovered in 2008 still did quite well for themselves, judging by the quality of the mosaics in their domicile.[205] Like Zeugma, it was also captured by Shapur in 253 C.E., but unlike Zeugma, it clearly recovered: several inhabitants of the city are known from the following centuries, amongst them two curials known from Libanius' letters – in which the city is described as once great, but now small – and several bishops and religious figures are linked to the city, among them the well-known Theodoret of Cyrrhus.[206] By the sixth century, the city was definitely surrounded by a city wall, encompassing around 65 hectares, with the walls partly built over older, Hellenistic city walls. But for the many centuries in between, it is unclear if any defensive structures were maintained.[207]

Its location, like so many cities in the Levant, also shows military considerations: the city is positioned around a defensible, natural hill overlooking the Afrin valley, and flanked by a deep gorge through which runs a tributary of the Afrin River. A little to the south lie two Roman bridges, one over the Sabun Suyu and one over the Afrin itself.[208] The remains of the hilltop citadel are Byzantine, probably from the sixth century, but remained in use until the twelfth century.[209] As a whole, rather little can be said about the urban development of the city. But it seems to stand in contrast to the urban metropoleis in the region: a somewhat remote bridge town, a resilient community despite its dwindling strategic importance, adorned with a sizeable theatre and a colonnaded street, but its old walls unmaintained.

On the road towards Apamea in the south, roughly following the border of the Syrian steppe, the cities of Beroia (modern Aleppo) and Chalcis ad Belum also offer only limited information, but show some similarities to Cyrrhus. Both cities are Seleucid garrison towns based around old tell sites dating at least to the Middle Bronze Age, and for a short while in the first century B.C.E. Beroia was an independent principality.[210] In the case of Beroia, the tell is the location of a

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[204] Franz Valery Marie Cumont, *Études Syriennes* (Paris : Picard, 1917), 225, http://archive.org/details/tudessyriennes00cumouoft.
[205] Jeanine Abdul-Massih, 'La fortification polygonale et les mosaïques d'une maison romaine à Cyrrhus (Nebi Houri) - Notes préliminaires', *Syria. Archéologie, art et histoire*, no. 86 (1 November 2009): 289–306.
[206] Todt and Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, 1414.
[207] Al Shbib, 'Les Fortifications de La Ville de Cyrrhus'.
[208] Cumont, *Études Syriennes*, 236–37.
[209] Al Shbib, 'Les Fortifications de La Ville de Cyrrhus'; Abdul-Massih, 'La fortification polygonale et les mosaïques d'une maison romaine à Cyrrhus (Nebi Houri) - Notes préliminaires'.
[210] Giulia Annalinda Neglia, 'An Interpretation of the Urban Fabric: The Structure of Pre-Islamic Aleppo', *Urban Morphology* 11, no. 1 (2007): 43; Marie-Odile Rousset, 'Chalcis/Qinnasrin: From Hellenistic City to the Jund Capital of North Syria', in *Proceedings of the 7th International Congress on the Archaeology of the Ancient Near East. 12 April - 16 April 2010, the British Museum and UCL, London*, vol. 2 (Wiesbaden:

Medieval citadel (in a similar fashion to Apamea); Sauvaget suggests that the foundations predate the early Islamic period.[211] At Chalcis, later Qinassrin, the tell appears to have been fortified during the Classical period, and a citadel from the sixth and later centuries was located on the top of the mountain next to city. The city was investigated by ground survey between 2008 and 2010, and interestingly shows a shift in occupied area between the Hellenistic and Roman and late Roman periods. For the former periods, the tell and the area to the southwest show most signs of habitation, but by the Byzantine period, an area of 75 hectares to the north of the tell was surrounded by city walls.[212] Like Cyrrhus, the few literary mentions of these towns do not suggest any urban grandeur, with at least Beroia (together with Bambyke and Herakleia) described by Strabo as a small town (polichnion). Pliny calls the Chalcidene the most fertile area of Syria, but despite this, as Rousset mentions, the city is almost entirely absent in historical sources for the Hellenistic and Roman periods.[213]

Further south, along the Orontes just between Apamea and the former Emesene cities, lies Larissa (also known by its older names Sizara and Shayzar). What is known of this town neatly fits the image of the three towns above. Once again this was an early Seleucid foundation (or, according to Grainger, it was founded by Alexander himself) with this time a colony of Thessalians.[214] The city was already mentioned in Egyptian sources going back to the 15th century B.C.E. – and as Matthias Grawehr suggests, like most Seleucid foundations, the fact that the old name survived next to the new Greek name may indicate that the Greek 'foundation' involved only the installation of a group of settlers into an already existing settlement.[215]

The settlement hill, measuring a considerable 24 hectares, was surrounded by a Roman period lower city, making a city of about 45 hectares total in size.[216] Located at a crossing over the Orontes, and at the southern entrance to the Ghab Valley, its strategic value is also comparable to that of Cyrrhus. Unsurprisingly, the higher natural plateau on the eastern side of the tell was also the site of a large citadel in the Medieval period.[217] The tell was fortified in the twelfth

Harrasowitz Verlag, 2012); Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 143–45, 153–54.

[211] Sauvaget, *Alep*.

[212] Rousset, 'Chalcis/Qinnasrin: From Hellenistic City to the Jund Capital of North Syria', 552, 556.

[213] Strab., 16.2.7; Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 154; Plin., *HN*, 5.19.81.

[214] Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 118; Grainger, *The Cities of Seleukid Syria*, 39–40.

[215] Matthias Grawehr, 'Putting Larissa on the Map', in *New Prospecting in the Orontes Region : first results of archaeological fieldwork*, ed. Karin Bartl and Michel al-Maqdissi, Orient-Archäologie 30 (Rahden, Westf: VML Vlg Marie Leidorf, 2014), 132.

[216] Matthias Grawehr, Jamal Ramadan, and Hijazi Majd, 'Syrisch-Deutsche Arbeiten in Shayzar/Larissa: Erster Vorbericht', *Zeitschrift Für Orient-Archäologie* 2 (2009).

[217] Cristina Tonghini, *Shayzar I : The Fortification of the Citadel*, 1st ed. (Leiden: BRILL, 2011), 411–13, while pottery finds suggest human activity during the Roman period, nothing further can be stated with any degree of certainty about the type of occupation on the tell in the classical period.

century C.E. and the lower town appears to have been walled as well; at least, the local antiquities service seems to have indicated that part of the fortifications has been found to the south of the tell. While the outer wall is not yet dated, its hypothetical position matches the ceramic surveys in the area, and corresponds to the Hellenistic and Roman finds.[218] A semi-circular depression in the north western part of the town is potentially the site of a theatre, but there is no further proof for this yet. In several spots there are indications of local production of glass and pottery.[219]

For none of these cities do we have a conclusive overview of what they looked like or how they functioned, but together they form an image of moderately-sized towns located in positions that were strategically relevant throughout history. For the mid-Roman period, their military importance seems limited; this may explain why in none of the cases it can be said with certainty if the cities were fortified. Only Cyrrhus retained a military function, but possibly only in relation to specific campaigns. On an urbanistic level, they seem to mostly adhere to a Hippodamian plan, but lack the spectacular monumental complexes found in the Tetrapolis or even some of the coastal cities.

In comparison, if we move just forty kilometres further south (inland, not along the Orontes), the next town is Raphanea. This town is not a Seleucid foundation, nor does it have any further history before the Roman period. In fact, this is one of the few Roman military bases in the east of which it can be stated that it was not connected to an existing city at its foundation – Markus Gschwind mentions that at the time of the installation of the fort, nearby Emesa was still an independent (or client-) kingdom, explaining the logic of positioning a military base at what would in later years seem to be just a secondary route.[220]

While research at the site has been limited to several seasons of geophysical surveys, it appears that the urban morphology of the later town developed as one would expect from examples of cities from the north-west of the Roman Empire developing from military bases. There is a clear distinction between the orientation of streets and buildings of the original base and the adjoining *canabae,* with the civilian settlement fanning out from the base. There are (so far) no indications of a Hippodamian plan, colonnaded streets and the like. While the camp itself clearly

[218] Grawehr, Ramadan, and Majd, 'Syrisch-Deutsche Arbeiten in Shayzar/Larissa: Erster Vorbericht', 222–24.
[219] Grawehr, Ramadan, and Majd, 225.
[220] Markus Gschwind, 'Raphaneae, Syrien: Die Arbeiten der Jahre 2013 und 2013', *e-Forschungsberichte des Deutschen Archäologischen Instituts*, no. 2 (2014): 106–10; Markus Gschwind and Haytham Hasan, 'The Legionary Fortress and Roman City Raphaneae: Topographical, Archaeological and Geophysical Survey Work conducted in 2005-2007', in *New Prospecting in the Orontes Region : first results of archaeological fieldwork*, ed. Karin Bartl and Michel al-Maqdissi, Orient-Archäologie 30 (Rahden, Westf: VML Vlg Marie Leidorf, 2014), 119–30.

had been walled (although the material of the wall was likely reused for building construction in Late Antiquity), the researchers do not suggest a wall existed around the civilian settlement. Perhaps what Raphanea has most in common with the other towns is that the nearby mountaintop became the site of a later Crusader fort.[221] It appears that settlement had just started minting coins (under Caracalla or Elegabalus), suggesting it was also recognized as a self-governing city at that time.

1.2.5 Zeugma, the Commagene and the Euphrates cities

To the north of the Antiochene, between the Euphrates and the Taurus mountains, we find the territory of what in the first century C.E. was still the client kingdom of Commagene. This area, treated in more detail in the recent book on Asia Minor by Rinse Willet, should be briefly discussed here.[222] The early history of the kingdom is quite obscure, but as a regional name Kummuḫu seems to go back to the Neo-Assyrian period, and it was an Assyrian vassal from at least the 9th century B.C.E.[223] In the Hellenistic period, it seems to have come under the dominion of the Seleucids at the latest under Antiochos III, although it may have retained some degree of autonomy. By 163-162 B.C.E. the first ruler of Commagene, Ptolemaios, declared independence. His successors appeared quite capable at maintaining balanced relations with its changing powerful neighbours, from the Seleucids to Armenia and later the Romans. After Pompey gained the upper hand against Pontus and Armenia, Commagene declared allegiance to Pompey, and became a client kingdom, in return for which it acquired the city of Zeugma.[224]

Only in a few instances did the kingdom fail to judge the political situation correctly, resulting for example in a Roman invasion in 37 B.C.E., after Commagene apparently aided the Parthians during the invasion of 40-37 B.C.E..[225] The Roman invasion seems to have failed after the unsuccessful siege of Samosata. Another misstep was siding with Mark Antony at Actium – although the kingdom seems to have established a reasonable relationship with Augustus. He did intervene in Commagene politics shortly after, when he had the brother of king Mithridates II tried and executed. According to Cassius Dio, the brother had been quarrelling with the king, and had murdered an ambassador Mithridates II had sent to Rome.[226]

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[221] Gschwind, 'Raphaneae, Syrien'.
[222] Rinse Willet, *The Geography of Urbanism in Roman Asia Minor* (Equinox publishing; Sheffield and Bristol, 2020), https://lirias.kuleuven.be/2952190.
[223] Hartmut Kühne, 'Kommagene', in *Der Neue Pauly* (Brill, 1 October 2006), https://referenceworks.brillonline.com/entries/der-neue-pauly/*-e619060?lang=en.
[224] Maurice Sartre, 'Les Nomades Dans l'Empire Romain', *L'Itinérance de l'Antiquité à l'époque Moderne*, 2009, 424–28; William Aylward, 'The Rescue Excavations at Zeugma in 2000', in *Excavations at Zeugma*, ed. William Aylward, vol. 1 (Los Altos, California, 2013), 11.
[225] Margherita Facella, *La dinastia degli Orontidi nella Commagene ellenistico-romana*, Studi ellenistici ; 17 (Pisa: Giardini, 2006), 244.
[226] Facella, 299–300.

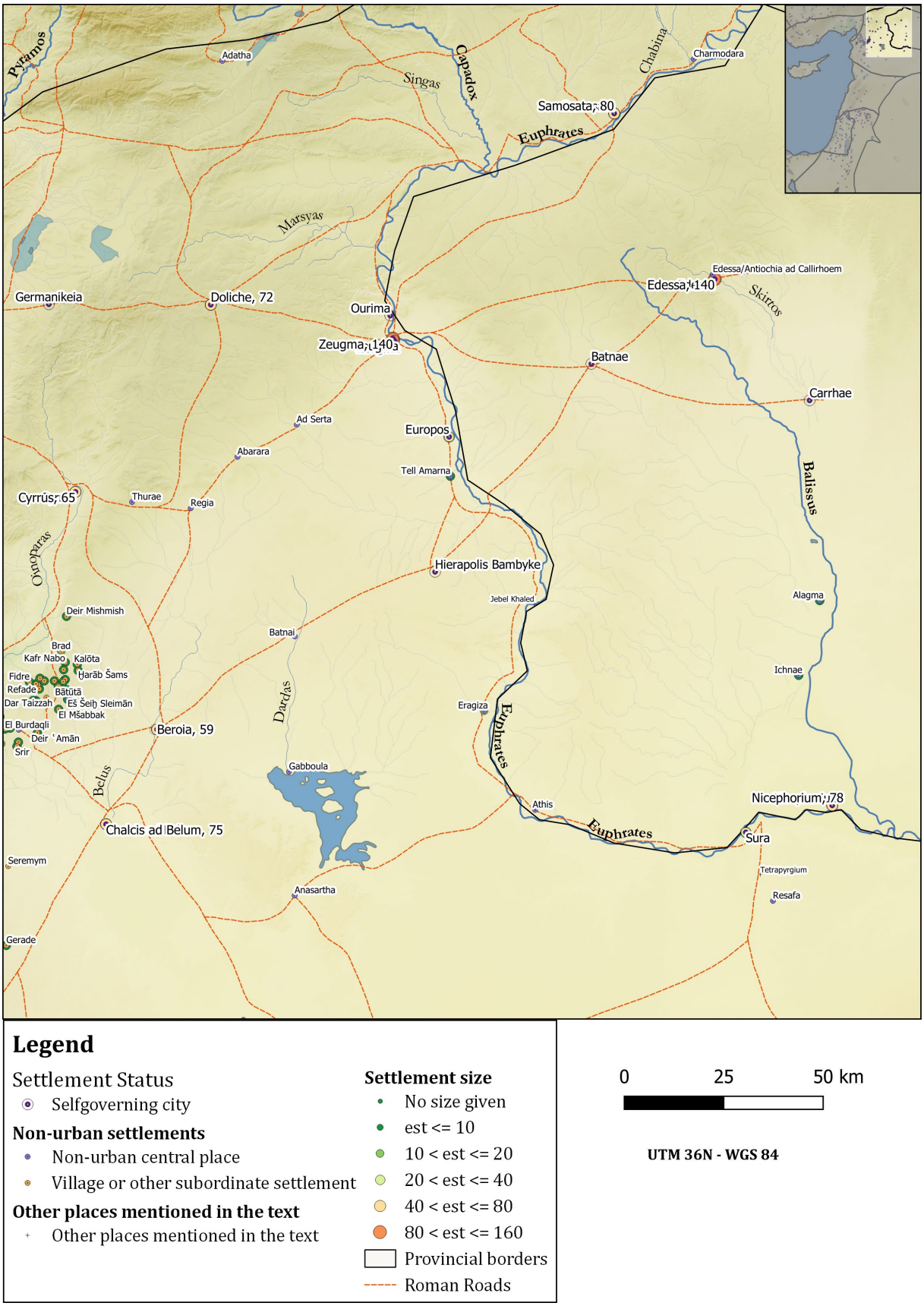

Figure 16 Zeugma and the Euphrates cities

As Sartre posits, Commagene appears to have been powerful enough and in control of a strategic (buffer) position towards Parthia and Armenia, so that Rome maintained it as a client rather than a conquest. The royal house certainly created several very tangible expressions of its power, a prime example being the enormous sanctuary on Nemrud Dağ. Here, large statues and reliefs of gods and rulers show an attempt to trace the lineage of the Commagene royal house back to both Alexander and Darius via the Orontids of Armenia – perhaps following the example of Mithridates of Pontus. At the same time, similar reliefs with ruler portraits were set up throughout various cities of the kingdom, including Zeugma.[227] Even so, as most other clients, it was eventually annexed to the province of Syria. Initially, this situation lasted only two decades from 17 C.E. until Caligula restored the kingdom. Under the pretext that the kingdom was once again plotting with the Parthians, it was annexed again – and for good – in 72 C.E..[228]

An interesting aspect of the Commagene kingdom is the foundation of several cities. As with any urban foundation, these may not all been foundations *ex nihilo*, but simply new names for existing settlements. Arsameia and the capital Samosata were likely named after (supposed) members of the royal family, from the third century B.C.E., although Samosata clearly went back far longer, with the site showing evidence for almost continuous habitation from the Neolithic period.[229] The later foundation of Caesarea Germanikeia was clearly named in honour of Caligula or Claudius.[230] Whatever the details, with cities bearing dynastic names and minting local coinage, there is the suggestion that they mirrored at least some regional urban traditions.

On the basis of limited information, the cities of Commagene appear to have remained relevant throughout the Roman period, and were still the four main centres of the area as mentioned in the Late Roman lists of bishoprics.[231] Jones suggests that before Roman rule, the area was organised into toparchies, based on a phrase in the funerary inscription of Antiochus III, which states that the royal family should be celebrated throughout the cities and villages of the kingdom. Jones' suggestion is that this means they ruled directly over the villages of Commagene, but this seems rather far-fetched – especially considering that this was a Ptolemaic, rather than Seleucid practice.

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[227] Sartre, *D'Alexandre à Zénobie*, 500, 503; Charles Brian Rose, 'A New Relief of Antiochus I of Commagene and Other Stone Sculpture from Zeugma', in *Excavations at Zeugma*, ed. William Aylward, vol. 1 (Los Altos, California, 2013), 220–31; Facella, *La dinastia degli Orontidi nella Commagene ellenistico-romana*, 294–97; M. J. Versluys, *Visual Style and Constructing Identity in the Hellenistic World: Nemrud Dağ and Commagene under Antiochos I*, 1st ed., Greek Culture in the Roman World (Cambridge: University Press, 2017).
[228] Sartre, *D'Alexandre à Zénobie*, 502–4.
[229] Sartre, 427; Kühne, 'Kommagene'.
[230] Jörg Wagner, 'Germanikeia', in *Der Neue Pauly* (Brill, 1 October 2006), https://referenceworks.brillonline.com/entries/der-neue-pauly/germanikeia-e422530.
[231] Jones, *The Cities of the Eastern Roman Provinces*, 266.

Samosata remained the main city of Commagene. It became the base of a legion (or, consecutively, three legions), and as Haensch shows, saw the occasional presence of the Syrian governor holding assizes.[232] Based on Corona imagery and a survey undertaken before the area of Samosata was flooded by a dam, its fortified area can be estimated at around 120 hectares during the Roman period, with the later Umayyad inner wall only surrounding 70 hectares.[233] Its frontier position, its large and defensible acropolis and, apparently, an easy crossing across the river made it a strategically important site. Its walls were renewed by Justinian, and in later periods the city remained strong as well, until a Mongolian sack in 1243.[234] Of the other cities, it seems that Zeugma and Melitene also received a legion, making this stretch of the Euphrates the most densely militarised part of the region.

From Samosata south along the Euphrates lies Zeugma (the name meaning 'bridge'), originally known as Seleucia on the Euphrates. It is located on the slope of a hill, Belkis Tepe, running down towards the river. Of the cities in this region Zeugma is the best researched due to the rescue excavations undertaken in the years leading up to 2000, when a hydroelectric dam was built on the river. The subsequent rise in the water level covered an estimated 30% of the ancient city, and the entirety of Apamea on the Euphrates on the other side of the river. Before the area was flooded, French, Turkish and English teams excavated several portions of the city. They uncovered considerable parts of a residential quarter; by 2004, around 20 residences were excavated, albeit most of these only partially.[235] However, no good evidence was found for city walls (except for the Hellenistic walls of the acropolis and the fortifications of the military base), monumental architecture beyond a bathhouse, or the course of the streets. Aylward suggests that because of the challenging terrain it was unlikely to have had a typical Hippodamian plan. One known street turned into a staircase onto Belkis Tepe. There is still no clear idea of the extent of the city, beyond Kennedy's estimate of 140 hectares surrounded by the necropoleis of the city.[236]

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[232] Sartre, *D'Alexandre à Zénobie*, 479; Rudolf Haensch, *Capita provinciarum : Statthaltersitze und Provinzialverwaltung in der römischen Kaiserzeit* (Mainz am Rhein: von Zabern, 1997), 255–56; Jörg fl Wagner, *Die Römer an Euphrat und Tigris*, Antike Welt. Sondernummer ; 1985. 850810698 (Feldmeilen: Raggi-Verlag, 1985), 46.

[233] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 108 fig. 14; Center for Advanced Spatial Technologies, University of Arkansas/U.S. Geological Survey, 'Corona Atlas of the Middle East', fig. CORONA Mission 1107-2138 Aft (August 1 1969).

[234] Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 187–88; Michael Blömer, 'Samosata', in *The Encyclopedia of Ancient History* (John Wiley & Sons, Inc., 2013), https://doi.org/10.1002/9781444338386.wbeah14269.

[235] Catherine Abadie-Reynal, 'Acculturation et Habitat à Zeugma à l'époque Romaine', *Bollettino Di Archeologia on Line* 1, no. Volume Speciale G / G9 / 3 (2010): 15–24.

[236] Aylward, 'The Rescue Excavations at Zeugma', 14–16.

A Seleucid foundation under Nicator III, Zeugma seems not to have been of much significance until the first century C.E.. It mainly existed as a bridgehead and sanctuary, while initially the main city was rather Apamea on the Euphrates, on the opposite side of the river. Zeugma already fell under Roman control before the final annexation of Commagene, either from the earlier annexation in 17-18 C.E. Alternatively, as Millar and Wagner state, it may already have been taken from the Commagene kingdom by Augustus as a punishment for having sided with Mark Antony, since the coins of the city count their dating from 31 B.C.E. Sartre suggests that it fell under Roman control already ten years after the original grant to Commagene, as the senate revoked Pompey's decision.[237] The idea of a twin-town on two sides of the river should be discarded: the rise of Zeugma seems to be mirrored in the decline of Apamea on the Euphrates. It consisted of a 45 hectare fortified flat-land city overlooking the river. Geophysics and sondages reveal a very regular street grid, which seems to have been organised as such from its foundation; the walled area may possibly never have been fully built-up. At the same time, Zeugma seems not to have been anything more than a large village.[238] While the exact cause of the decline of Apamea is unclear – perhaps issues with the river, troubles with Parthians or Commagene, or other events of the period – it seems that it was abandoned at the end of the second or beginning of the first century B.C.E., about two centuries after its foundation. From that point on, or perhaps some decades earlier already, it seems that Zeugma started to grow considerably.[239]

By 66 C.E. at the latest the Legio IIII Scythica had arrived in Zeugma, at which time new Roman houses were being constructed in the city as well. It seems a reasonable interpretation that the presence of the legion was linked to the annexation of the Commagene kingdom six years later.[240] It is clear that the legion remained stationed at the city, and played an important role controlling the Euphrates border. The exact relation between city and the actual military installation seems to be somewhat complex. Swiss investigations between 2001 and 2006 were not able to discover a permanent fort that could have been used by the legion. Two overlying forts of 11 hectares might be the temporary camps used by Tiberius and/or Claudius, but these

[237] Wagner, *Die Römer an Euphrat und Tigris*, 30 note 60; Aylward, 'The Rescue Excavations at Zeugma'; Sartre, *D'Alexandre à Zénobie*, 471; Millar, *The Roman Near East*, 29–30.
[238] Catherine Abadie-Reynal, 'Séleucie-Zeugma et Apamée sur l'Euphrate : étude d'un cas de villes jumelles dans l'Antiquité', *Histoire urbaine*, no. 3 (2001): 7–24, https://doi.org/10.3917/rhu.003.0007.
[239] Aylward, 'The Rescue Excavations at Zeugma', 22–23; Abadie-Reynal, 'Séleucie-Zeugma et Apamée sur l'Euphrate', 20; Catherine Abadie-Reynal, 'Les Fouilles de Sauvetage de Zeugma: Un Bilan Des Résultats', *Journal of Roman Archaeology* 28 (January 2015): 824–25, https://doi.org/10.1017/S1047759415003207.
[240] Aylward, 'The Rescue Excavations at Zeugma', 11.

were not permanent installations.[241] On the other hand, a fortified camp on the At Meydanı plateau, on the southern side of the city, served a military purpose for a longer period: it contained numerous items of military equipment from the first to third centuries, workshops, a regular street grid, a 1 hectare fortified complex, thus likely a small fort. Inscriptions and tile stamps highlight the presence of the fourth legion, in addition to the presence of detachments of a number of other legions, mostly from the Danube frontier.[242]

As Hugh Elton points out, one would expect a base of around 18 to 20 hectares for the headquarters of a legion. While he is correct in stating that the small 1-hectare fort did not suffice to house the legion, the plateau as a whole could have done so, and Hartmann and Speidel clearly state that all studied parts of the At Meydanı plateau show indications of Roman military presence.[243] However, they do suggest that the area, split over several terraces, was impractical as a permanent base. Furthermore, all units besides the fourth legion are known to have been in the region in relation to specific military campaigns. The Swiss therefore suggest that this area served as a staging post for forces assigned to campaigns into Persia, and was therefore of especial significance as up to 195 C.E. this was directly on the frontier of the empire. The legion's own headquarters should then be sought somewhere else within the territory of Zeugma.[244]

Judging by the houses, the city seems to have retained its vitality after the Roman Empire had expanded towards the east. And for the six decades following the shift of the border, the inhabitants of Zeugma, or at least those living on the waterfront, continued to prosper. British researchers suggest that perhaps there was somewhat of a 'decline' or change in function of structures just before the Sassanian sack, due to Roman troops quartered in the civilian parts of the town. This is, however, doubted by the French archaeologists. Similarly, it is disputed whether the city was or was not abandoned before the sack.[245] As a side note, the presence of military finds throughout the city itself likely highlights the quartering of troops in the city during its final moments before the sack in 253 by Shapur I, similar to what is seen in Dura Europos. However, Zeugma may have been abandoned entirely at this time, as there are no

[241] M. Hartmann and M. A. Speidel, 'Military Installations at Zeugma: An Overview of the Swiss Archaeological Investigations, 2001–2003', in *Excavations at Zeugma*, ed. William Aylward, vol. 3 (Los Altos, California, 2013), 381–92.
[242] Hartmann and Speidel; M. G. Drahor et al., 'Magnetic and Electrical Resistivity Tomography Investigations in a Roman Legionary Camp Site (Legio IV Scythica) in Zeugma, Southeastern Anatolia, Turkey', *Archaeological Prospection* 15, no. 3 (2008): 159–86, https://doi.org/10.1002/arp.332 There seems to be a particular tie with Brigetio, the garrison of Legio I adiutrix.
[243] Hugh Elton, 'Zeugma's Military History in Light of the Rescue Excavations', in *Excavations at Zeugma*, ed. William Aylward, vol. 3 (Los Altos, California, 2013), 376.
[244] Hartmann and Speidel, 'Zeugma's Military History', 390.
[245] Abadie-Reynal, 'Les Fouilles de Sauvetage de Zeugma', 830.

indications of combat having taken place in the city itself.[246] What is certain, is that the city never recovered after Shapur's campaign. Only in the fourth century was the site inhabited again, and the finds suggest a mostly rural character.[247]

Abadie-Reynal posits that the ceramics found at Zeugma make it fit quite well into a Syrian context: the Packard Humanities Institute team suggested that with the near absence of Western imports, the city was rather isolated from the Mediterranean, and mostly focussed on Mesopotamia. Abadie-Reynal points out that imports from the West were rather limited in Roman Syria in general. In the first centuries B.C.E. and C.E., vast amounts of Eastern sigillata A were used in Zeugma, as elsewhere throughout the Levant. Sometime before Zeugma's fall, African wares started to be imported in the Syrian province, and these are also found in the city. Parthian wares are only present in very limited numbers, up to 1%, in contrast to Dura Europos and Jebel Khalid which seem to have been more oriented towards the East. Similarly, before the annexation of Mesopotamia, coin finds in the city were dominated by those from Antioch; only under Severus Alexander did issues from Edessa in Mesopotamia became prominent.[248]

The rest of the Euphrates border is rather poorly known before the later Roman fortifications. The city of Europos, on the site of ancient Carchemish – not to be confused with Dura Europos – offers very few insights, despite it being a moderately sized city of around 40 hectares. The research focus of past excavations lay with earlier phases of the city, so that little has been published on the Classical town. A publication on the inner town indicates that after its destruction in the seventh century B.C.E. it did see some Achaemenid activity, before a major reconstruction phase in the Hellenistic period.[249] More recently, Paul Newson indicates the presence of colonnaded streets, an agora and a second- or third-century C.E. temple for the Roman period. Clustering of Roman roof tiles also suggests some low-density suburban development on the edges of the city core, but habitation probably only peaked in the later Roman period. [250]

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[246] Elton, 'Zeugma's Military History', 377; Although this reading of the material is somewhat doubted by Abadie-Reynal: Abadie-Reynal, 'Les Fouilles de Sauvetage de Zeugma', 828–30.
[247] Abadie-Reynal, 'Les Fouilles de Sauvetage de Zeugma', 831.
[248] Abadie-Reynal, 839–40.
[249] Nicolò Marchetti, 'Karkemish on the Euphrates: Excavating a City's History', *Near Eastern Archaeology* 75, no. 3 (1 September 2012): 132–47; Tony J. Wilkinson et al., *Carchemish in Context: The Land of Carchemish Project, 2006-2010*, Themes from the Ancient Near East BANEA Publication Series ; Vol. 4 329892673 (Oxford & Philadelphia: Oxbow Books, 2016), 188–89; Federico Zaina, *Excavations at Karkemish I. The Stratigraphic Sequence of Area G in the Inner Town OrientLab, Series Maior, III*, OrientLab Series Maior 3 (Bologna: Ante Quem, 2018).
[250] Paul Newson, 'The Carchemish Region between the Hellenistic and Early Islamic Periods', in *Carchemish in Context: The Land of Carchemish Project, 2006-2010*, ed. Tony J. Wilkinson et al., Themes from the Ancient Near East BANEA Publication Series ; Vol. 4 329892673 (Oxford & Philadelphia: Oxbow Books, 2016), 184–202.

There was an auxiliary cavalry unit stationed in Europos between the late first and early second century. Newson suggests that the period saw a 'militarisation of the river zone' at this time, with units also present at Amarna, a small 6-hectare settlement 9.6 km to the south[251], and a tombstone of a soldier found 20 km further along the river. The site of Europos clearly remained of strategic importance, and was the site of a large battle in the second century C.E.[252]

Another place in the vicinity, Bersiba, is only known for its rich pre-Classical past – reaching its greatest extent, 50 hectares, in the Neo-Assyrian period. For the Classical period, besides its name mentioned by Ptolemy and the presence of a small Hellenistic sanctuary, nothing is known.[253]

A small settlement of about 12 hectares, probably Eragiza, was researched by a Swiss team in the 1970s. There are indications of an auxiliary garrison (inscriptions mentioning a *cohors secunda pia fidelis*, but without giving an origin) present here in the first to second century. A street, dated from coin finds to the first to fourth centuries, led through a large gate on the fortified acropolis. The fortifications are suggested to have been built in the early Byzantine period.[254]

Along the Euphrates, some minor settlements that became important fortified towns from the later third and fourth centuries onwards are for instance Circesium towards the south-east (the capture of which by Shapur in 253 was already mentioned, long before the fortifications constructed by Diocletian), Zenobia, Sura and Dibsi Faraj. [255] Of these, Sura was already mentioned by Pliny, and there was a road connecting it to Palmyra in 75CE.[256] It was destroyed first by Shapur I in 253 C.E., and three centuries later by Chosroes I in 540 C.E..[257] Kennedy suggests it was already garrisoned by the Flavian period, but certainly under the Severans with troops of the Legio XVI Flavia Firma.[258] In total, the site measures about 75 hectares in size,

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[251] Tony J. Wilkinson et al., 'Archaeology in the Land of Carchemish: Landscape Surveys in the Area of Jerablus Tahtani, 2006', *Levant* 39, no. 1 (June 2007): 225, 235, https://doi.org/10.1179/lev.2007.39.1.213.
[252] Newson, 'The Carchemish Region between the Hellenistic and Early Islamic Periods'.
[253] Peter M. M. G. Akkermans and Glenn M. Schwartz, *The Archaeology of Syria: From Complex Hunter-Gatherers to Early Urban Societies (c.16,000-300 BC)* (Cambridge University Press, 2003), 382; Trevor Bryce, 'Tell Ahmar', in *The Routledge Handbook of the Peoples and Places of Ancient Western Asia: The near East from the Early Bronze Age to the Fall of the Persian Empire* (London: Routledge, 2009).
[254] Rolf A. Stucky, 'Schweizerische archäologische Ausgrabungen auf Tell el Hajj (Syrien)', *Museum Helveticum* 29, no. 3 (1972): 228–31.
[255] Hamish Cameron, 'Constructing a Borderland: Roman Imperial Geographic Writers on Mesopotamia from the 1st to the 4th Centuries CE' (ProQuest Dissertations Publishing, 2014), 384, http://search.proquest.com/docview/1629829235/?pq-origsite=primo.
[256] Plin., *HN*, 5.87; Cameron, 'Constructing a Borderland', 321; Ali Othman, 'Sura (Raqqa)', in *A History of Syria in One Hundred Sites*, ed. Youssef Kanjou and Akira Tsuneki, Archaeopress Archaeology (Oxford: Archaeopress Publishing Ltd, 2016), 414–16.
[257] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 295.
[258] David Kennedy, *Rome's Desert Frontier: From the Air* (London: Batsford, 1990), 111, 116–17.

consisting of a north-eastern and south-western section, walled separately, and a castle in the middle. Ali Othman indicates that the north-eastern section, which measures around 20 to 25 hectares on satellite imagery, has an adobe wall and contains earlier Roman era finds. The far larger south-western part, with a dressed stone wall with numerous towers and two gates, only yields finds from a later period.[259] It is not entirely clear if Sura should be considered a city. However, even as a relatively small settlement, it nonetheless played a central role locally, especially considering that it was the located at the edge of the Roman (military) sphere of influence before expansion towards Dura Europos and Kifrin, and as Nigel Pollard indicates, again after loss of that territory.[260]

[259] Othman, 'Sura (Raqqa)'.
[260] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 295–96.

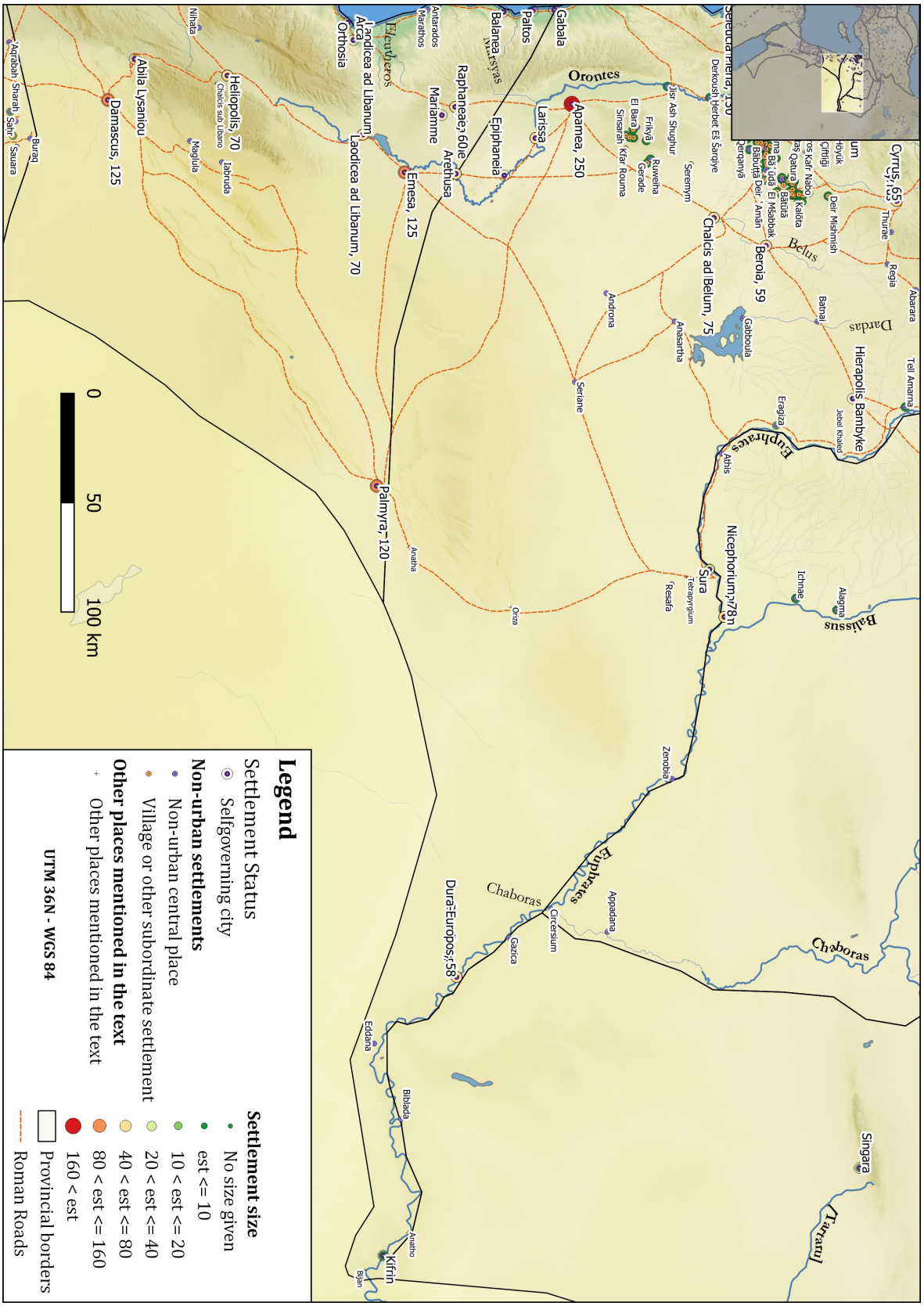

Figure 17 Damascus, Palmyra and Dura Europos

1.2.6 Palmyra

Of the cities in the Levant, Palmyra (or Tadmor) certainly counts as one of the most famous, although nowadays sadly marked by the events of the Syrian civil war. In many ways the city stands out, perhaps most notably in its location as an oasis city on the edge of the Syrian desert. The city has a long history of research: it was already made famous by travellers such as Pietro de la Valle in the seventeenth century, saw the first major publication on its inscriptions in 1870, and the first archaeological studies in 1902.[261] It speaks to the imagination as a meeting point between East and West and as a centre of the caravan trade, with authors naming the city a port of the desert or a 'Venise des sables'. Furthermore, it was the birthplace of queen Zenobia and her short-lived Palmyrene empire, adding to its fame.[262] On another level, it has a corpus of inscriptions which exceeds that of most other cities in the Levant, both in Greek and in its local variety of Aramaic, Palmyrene.[263]

While Palmyra was not strictly speaking a 'desert' city, rainfall conditions were still rather poor with an annual average of 125 mm per year, making rainfed agriculture of either barley or wheat only possible in particularly wet years, and thus extremely unreliable. That said, other forms of dryland agriculture could have been practiced, such as irrigation using the water from springs around the oasis or the catchment of winter rains or floodwater in the wadi beds. And indeed, there are many indications for alternative forms of dryland agriculture. In the mountainous area north of Palmyra, a number of small settlements were mapped by a Syrian-Norwegian project in the years before the war. In relation to these, some cisterns and cross-wadi walls point to possible run-off farming. Additionally, analysis of pollen and faecal matter enclosed in mudbrick from a tell site to the northwest of Palmyra also indicate the cultivation of barley, albeit from a Byzantine to Early Islamic context.[264] This will be discussed in more detail in chapter 3.2.4.1.

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[261] Michael Sommer, *Roms Orientalische Steppengrenze: Palmyra, Edessa, Dura-Europos, Hatra*, Oriens et Occidens 9 (Stuttgart: Steiner, 2005), 139; Eivind Heldaas Seland, *Ships of the Desert and Ships of the Sea: Palmyra in the World Trade of the First Three Centuries CE*, 1st ed. (Wiesbaden: Harrassowitz, O, 2016), 1–2.

[262] Fergus Millar, 'Caravan Cities: The Roman Near East and Long-Distance Trade by Land', *Bulletin of the Institute of Classical Studies* 42, no. S71 (1 February 1998): 119–37, https://doi.org/10.1111/j.2041-5370.1998.tb01697.x; Ernest Will, *Les Palmyréniens: la Venise des sables (Ier siècle avant - IIIème après J.-C.)* (Paris: Armand Colin, 1992); Javier Teixidor, *Un port romain du désert: Palmyre et son commerce d'Auguste à Caracalla*, Semitica ; 34. 840960611 (Paris: Librairie Adrien-Maisonneuve, 1984).

[263] Jean-Baptiste Yon, *Les notables de Palmyre*, Bibliothèque archéologique et historique (Beyrouth: Presses de l'Ifpo, 2002), http://books.openedition.org/ifpo/3763.

[264] Joan Campmany Jiménez et al., 'Food Security in Roman Palmyra (Syria) in Light of Paleoclimatological Evidence and Its Historical Implications', *PLOS ONE* 17, no. 9 (21 September 2022): e0273241, https://doi.org/10.1371/journal.pone.0273241; Meyer, 'City and Hinterland. Villages and Estates North of Palmyra. New Perspectives', 271; Knut Krzywinski and Jonatan Krzywinski, 'Agriculture in Byzantine Palmyrena', in *Palmyrena: City, Hinterland and Caravan Trade between Orient and Occident*, ed. Jørgen Christian Meyer, Eivind Heldaas Seland, and Nils Anfinset (Oxford: Archaeopress Publishing Ltd, 2016), 171–83.

The oasis appears to have seen its first permanent settlement from the end of the third millennium B.C.E. In second and first millennium texts there are a few indications of Tadmoreans (Palmyrenes) as nomads, but no mention is made of a settlement.[265] The first indications of the Classical settlement can be traced to the third century B.C.E. There was probably a precursor to the temple of Bel from that period, and several houses are dated to the third century B.C.E. as well.[266] Exactly at what point the settlement should be considered to have developed into a city is unclear. Construction seems to have intensified in the first century B.C.E. (the earliest indications of the temple of Allat), and Palmyrene inscriptions start halfway through that century as well.[267] Appian mentions that in 41 B.C.E. the city was raided by the troops of Mark Antony, but as Hekster and Kaizer show, the passage is not without problems.[268] In year 32 C.E. the cella of the new temple of Bel was constructed on the old tell overlooking the city. The same century also saw the construction of the agora.[269] In any case, by the last quarter of the first century C.E. there are unambiguous inscriptions mentioning the council and the people of the city.[270] As in many other places, most monumental construction is dated to the second century, with notably the theatre, colonnaded streets, the tetrapylon, the oval plaza and more temples (including also an expansion of the temple of Allat). Inscriptions furthermore mention the existence of a 'garden of the gods'.[271]

The city also had several lines of fortification. Best visible are the 'walls of Diocletian', surrounding an area of 118 hectares. In fact, it consists of multiple construction phases, but all are definitely Late Roman, with parts only built under Justinian. It is clear, in any case, that the city had been larger in earlier centuries, including as well the area of (at least) 20 hectares that made up the 'Hellenistic city' surveyed by Schmidt-Colinet's team. Despite the name, this was certainly also in use throughout the Roman period.[272] There are also earlier walls, dating to the first or perhaps second centuries C.E. The walls protected more than the city proper, including

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[265] Ball, *Rome in the East*, 74; Teixidor, *Un port romain du désert*, 8; Michael Sommer, 'Der Löwe von Tadmor. Palmyra und der unwahrscheinliche Aufstieg des Septimius Odaenathus', *Historische Zeitschrift* 287, no. 2 (2009): 281–318, https://doi.org/10.1524/hzhz.2008.0043.
[266] Andreas Schmidt-Colinet and Waleed Al-As'ad, eds., *Palmyras Reichtum durch weltweiten Handel. archäologische Untersuchungen im Bereich der hellenistischen Stadt / Band 1, Architektur und ihre Ausstattung*, vol. 1 (Place of publication not identified Holzhausen der Verlag, 2013); Christine Ertel and R. Ployer, 'A Roman Residential House in the "Hellenistic" Town of Palmyra:: Archaeology, Function and Urban Aspects - Vessel Glass', 2016, https://doi.org/10.2307/j.ctvxrq0dc.14.
[267] Millar, *The Roman Near East*, 320.
[268] Olivier Hekster and Ted Kaizer, 'Mark Antony and the Raid on Palmyra : Reflections on Appian, "Bella Civilia" V, 9', *Latomus* 63, no. 1 (2004): 70–80.
[269] Sommer, *Roms Orientalische Steppengrenze*, 140; Millar, *The Roman Near East*, 323.
[270] Teixidor, *Un port romain du désert*, 9.
[271] Sommer, *Roms Orientalische Steppengrenze*, 139–48.
[272] Sommer, 148; Schmidt-Colinet and Al-As'ad, *Palmyras Reichtum durch weltweiten Handel. archäologische Untersuchungen im Bereich der hellenistischen Stadt / Band 1, Architektur und ihre Ausstattung*, 1:75, 88.

necropoleis and agricultural land as well. An inscription that states that the wall was the point where taxation of camels took place, gives some merit to the commonly used designation 'customs wall'.[273] It should be pointed out that these outer walls appear to exist out of three sections, not connected to each other, and lack towers. Gawlikowski states that the slopes to the west and northwest fulfilled the functions of the walls toward that direction, and only on the eastern side walls should still be found. The suggestion is that – if they had a defensive function – the walls mostly protected the gardens and water sources of the city against mounted troops, but would not be of any use in a siege.[274]

Besides the raid in 41 B.C.E., the first indications of Roman influence in the region come from 11 or 12 C.E., when a Roman propraetorian legate determined the borders of the Palmyrene territory.[275] It is usually argued that full Roman annexation of the city took place only a few years later under Tiberius, while Germanicus was in Syria, based on an inscription that indicates that a statue group of Germanicus, Tiberius and Drusus was set up in the temple of Bel. Furthermore, the earliest parts of the tariff law (discussed below) were originally accepted by Germanicus, a further indication of considerable Roman influence at that time.[276] Peter Edwell nonetheless prefers to interpret the city as a client state at that time. He argues that Germanicus' visit also dealt with other clients, such as Armenia and the Nabateans, which remained independent afterwards. Furthermore, this suggestion would agree with Pliny's statement that in the time of Vespasian the city had "a destiny of its own between the two empires of Rome and Parthia", which scholars often regard as anachronistic.[277] As Edwell shows, Pliny mentions as his sources for the region two governors also known from the tariff inscription, suggesting his information was up to date.[278] There were, furthermore, Palmyrenes serving as Roman auxiliaries from the beginning of the second century. An auxiliary unit may also have been formed in Palmyra under Trajan – but does not seem to have been stationed in the city. The first evidence of Roman military presence in Palmyra itself only dates to the second half of the second century, at the latest from 167 C.E. Edwell's idea therefore is that the city was only incorporated into the Roman provincial structure during or after the campaigns of Lucius Verus, in parallel to Dura Europos. At the very latest, Palmyra may have been incorporated when it was granted

[273] Michał Gawlikowski, 'Palmyra as a Trading Centre', *Iraq* 56 (1 January 1994): 28, https://doi.org/10.2307/4200382.
[274] Michał Gawlikowski, 'Les Défenses de Palmyre', *Syria*, 1974, 231–42; Karol Juchniewicz, 'Late Roman Fortifications in Palmyra', *Studia Palmyreńskie*, no. XII (2013): 193–202.
[275] Teixidor, *Un port romain du désert*, 10.
[276] Seland, *Ships of the Desert and Ships of the Sea*, 12; Teixidor, *Un port romain du désert*, 10; Peter M. Edwell, *Between Rome and Persia : The Middle Euphrates, Mesopotamia and Palmyra under Roman Control* (London etc: Routledge, 2008), 39.
[277] Plin., *HN*, 5.21.2.
[278] Edwell, *Between Rome and Persia*, 44.

colonial status by Septimius Severus or Caracalla.[279] Either way, whether as a client or fully incorporated into the empire, from the first century C.E. Palmyra clearly fell within the Roman sphere of influence.

While strictly speaking beyond the scope of this thesis, it is worth noting how a century later, the city became the heart of an uprising against Rome. In the middle of the third century,ʿUdaynath, better known as Odaenathus, had become a powerful figure in Palmyra; perhaps as the governor of Syria Phoenike, although this is entirely unclear.[280] After the defeat of emperor Valerian in 260 against the Sassanids,ʿUdaynath managed to lead a successful campaign, first suppressing several usurpers and then retaking lost territories from the Persians, maybe even attacking Ctesiphon. With his actions he won the gratitude of the new emperor and was granted elevated titles, or perhaps Gallienus was too occupied in Italy and on the Danube and simply had to accept this powerful player in the east.[281] ʿUdaynath and one of his sons were however murdered in 267 or 268. Upon this, his wife Zenobia took power as regent for their under-age son Wahballath. In the following five years, until her defeat and capture by Aurelian, her troops had managed to take much of Syria, Arabia and Egypt as well as parts of Asia Minor.[282]

Generally, in modern scholarship the actions of Zenobia are interpreted as a typical bid for imperial power. Certainly by 270 Zenobia and Wahballath had assumed the imperial title of *Augustus* (as well as the Iranian title of King of Kings), and their campaigns mirror those of Vespasian in the first century. Interpretations as a bid to create an independent Palmyrene or even Arab empire are mostly discarded.[283] Sommer nonetheless adds a layer of complexity to the issue, seeing the rise of Odaenathus as the result of monarchical tendencies and the importance of charismatic individuals for the city from the second century onwards, and at the same time as the result of a power vacuum due to the weakening of the empire.[284]

What is evident is that this was a city of considerable size, monumental splendour, and over time, military strength; going beyond what one would expect of a somewhat remote town with relatively poor agricultural land. Palmyra's reputation as a city of trade suggests the explanation should be sought in commerce. Of course, as others have stated, it was still a reasonable site for a town or city, even if there had been less trade, as it had access to a considerable hinterland and

[279] Edwell, 52–61; Sartre, *D'Alexandre à Zénobie*, 972.
[280] Millar, *The Roman Near East*, 178–81.
[281] Ball, *Rome in the East*, 77–79; Sartre, *D'Alexandre à Zénobie*, 976–77.
[282] Ball, *Rome in the East*, 77–83.
[283] Sartre, *D'Alexandre à Zénobie*, 980–82; Millar, *The Roman Near East*, 335.
[284] Sommer, 'Der Löwe von Tadmor. Palmyra und der unwahrscheinliche Aufstieg des Septimius Odaenathus', 316–17.

offered control over the neighbouring steppe and desert.[285] Furthermore, Seland highlights the important point that the development of this oasis city into a commercial centre was certainly not predetermined: there were several other cities on the border between the Parthian and the Roman spheres of influence, in more favourable locations or on potentially better trade routes.[286]

1.2.7 Dura Europos

Dura Europos was a late addition to the Roman empire, only conquered in 166 C.E. during Lucius Verus' campaign, and destroyed a century later in a Sassanid siege. Andreas Luther suggests the possibility that Dura was not even annexed until the campaigns of Septimius. His argument rests on the continued use of Parthian court-titles up to 180 C.E and the lack of evidence for the settlement belonging to one of the Roman provinces before becoming part of Syria Phoenice.[287] Despite its relatively short time as a part of the empire, and not being a particularly large city, it is like Palmyra exceptionally well-known, even though it is hardly mentioned in literary sources. As the site remained (mostly) abandoned after the sack, it was well placed for archaeological excavations in the 1920s and 30s and from the 1980s onwards, including a rich papyrological corpus.[288]

The city itself is positioned on a defensible plateau bordered by two wadis on the western bank of the Euphrates. Fertile soils in the surrounding area and the possibility of irrigation using water from the river more than make up for low rainfall. Even with such a location, unlike many other places discussed, there is no archaeological evidence for a settlement existing before the foundation by Seleukos Nikator; it may thus be a rare example of an actual *Neugrundung*.[289] Its fortifications and urban grid clearly date to Seleucid rule, but are nowadays considered to reflect a second urbanisation phase in the middle of the second century B.C.E., rather than having been created at its foundation. The walls were built with expansion in mind, as the Hellenistic city in

[285] John Grout, 'The Role of Palmyrene Temples in Long-Distance Trade in the Roman Near East' (Ph.D., London, Royal Holloway, University of London, 2016), 57; As Kaizer indicates, this also remains an hypothesis. Equally, there is the possibility of potential Palmyrene influence over Dura Europos. Whether partially or fully incorporated into the Roman Empire, this would place Dura within the Roman sphere of influence as well. Ted Kaizer, 'Empire, Community, and Culture on the Middle Euphrates. Durenes, Palmyrenes, Villagers, and Soldiers', *Bulletin of the Institute of Classical Studies* 60, no. 1 (2017): 68–73.
[286] Seland, *Ships of the Desert and Ships of the Sea*.
[287] Andreas Luther, 'Dura-Europos Zwischen Palmyra Und Den Parthern. Der Politische Status Der Region Am Mittleren Euphrat Im 2. Jh. n. Chr. Und Die Organisation Des Palmyrenischen Fernhandels', in *Commerce and Monetary Systems in the Ancient World: Means of Transmission and Cultural Interaction*, ed. Robert Rollinger et al., Oriens et Occidens 6 (Stuttgart: Steiner, 2004), 333–35.
[288] Kaizer, 'Empire, Community, and Culture on the Middle Euphrates. Durenes, Palmyrenes, Villagers, and Soldiers', 74.
[289] Sommer, *Roms Orientalische Steppengrenze*, 270–72.

no way filled up the entire 58 hectares they enclosed, although it did by the time of its destruction.

A citadel was constructed in the Hellenistic period, on the higher ground next to the river, which in the Parthian period was replaced with a palatial structure: the city appears to have played a role as a local governance and commerce centre at that time.[290] An additional building from the Hellenistic period is sometimes called a 'redoubt palace', or identified as a *strategeion*, may be nothing more than a particularly large and monumental residential building.[291] Further finds from that period show the city possessed an agora, although it would be partly filled in with construction over time, and possibly two temples.[292] On a monumental level, the city would never become very spectacular. Besides a small odeion, perhaps used as a bouleuterion, several new temples were constructed throughout the Parthian and Roman periods, including also a Palmyrene temple, evidence of a Palmyrene community in the city. A small synagogue and a Christian building give additional evidence of religious diversity in this town at the beginning of the third century.[293]

An interesting aspect is that a section in the west of the city seems to have been repurposed for military use from the early third century onwards.[294] A number of barracks appear to have been formed by converting civilian houses, while several facilities are thought to have served military purposes – including baths and a mithraeum. One house has been suggested to have functioned as the residence of the legionary commander. Furthermore, a mudbrick wall seems to divide this part of town from the 'civilian' part of the city; while it is not entirely clear how large the area was, it measured somewhere between 8 and 12 hectares.[295] A military presence was to be expected in the city, as it would have been one of the easternmost Roman outposts on the Euphrates, until troops were stationed under the Severans around Kifrin, further down the route towards Hit.[296] Indeed, auxiliary troops from Palmyra appear to have served in the city immediately after the annexation. Inscriptions, graffiti and papyri found in the city further attest

[290] Simon James, *The Roman Military Base at Dura-Europos, Syria: An Archaeological Visualization* (Oxford: University Press, Incorporated, 2019), 51.
[291] J. A. Baird, *The Inner Lives of Ancient Houses: An Archaeology of Dura-Europos* (Oxford University Press, 2014), 251–52, https://doi.org/10.1093/acprof:osobl/9780199687657.001.0001.
[292] Edwell, *Between Rome and Persia*, 100; Sommer, *Roms Orientalische Steppengrenze*, 273.
[293] Lucinda Dirven, *The Palmyrenes of Dura-Europos: A Study of Religious Interaction in Roman Syria*, Religions in the Graeco-Roman World ; Vol. 138. 095017933 (Leiden [etc.]: Brill, 1999); Edwell, *Between Rome and Persia*, 102–12.
[294] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 46; J. A. Baird, 'The Roman Military Presence in the Houses of Dura-Europos', in *The Inner Lives of Ancient Houses: An Archaeology of Dura-Europos*, 2014, 111–54, https://academic.oup.com/book/32786/chapter/274388850.
[295] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 48–50, 56; See now also for an up to date overview James, *The Roman Military Base at Dura-Europos, Syria*.
[296] Carlo Lippolis, 'Kifrin, avant-poste sur l'Euphrate', in *Studia Euphratica: le moyen Euphrate iraquien révélé par les fouilles préventives de Haditha*, ed. Christine Kepinski, Olivier Lecomte, and Aline Tenu, Travaux de la Maison René-Ginouvès 3 (Paris: De Boccard, 2006), 368.

to the presence of troops from the *cohors XX Palmyrenorum* and vexillations of the *IV Scythica* and *III Cyrenaica* legions. The military quarters however, seem to date mostly from Caracalla at the earliest, up to the sack of the city. It is possible that, but unclear, if the area described above was already used for military purposes in the first decades of Roman control. If not, it is not obvious where troops might have been quartered instead.

As mentioned before, there seems to have been a permanent Palmyrene community in Dura Europos, possibly extending beyond that of Palmyrene troops, probably a community of traders. With the likelihood that Palmyrene traders did not travel by Dura Europos but took an inland route towards Hit for their trade along the Euphrates, Dura is now considered less important in Palmyra's trade network than has been thought before. Even so, it would still have been an important local market, or played a role in regional food production.[297]

Archaeological finds and the Dura papyri give some further insight into the organisation of the surrounding territory. There were several outposts further along the river.[298]

The above-mentioned outpost at Kifrin was a fortified citadel constructed under Septimius Severus in a small existing walled city that dated back at least to the Neo-Assyrian period. It has been identified as the Becchufrayn (Βηχχουφρείν) mentioned in the Dura Papyri (*P. Dura* 100, 101 and 182), and saw a garrison of 91 soldiers from the Palmyrene Cohors XX in 219 C.E. The researchers suggest it served as a local headquarters for a handful of forts constructed in the surroundings at the same period, at ʿAna, Anqa, Ertaje Bijan and Telbis. It only lasted for several decades, with the last finds dating to Gordian III.[299] Its location is now covered by the Haditha Dam Lake.

Papyri dating to around 245 C.E. from the middle Euphrates region show evidence of the lower order settlement hierarchy. Four villagers from Beth Phouraia (unlocated, but somewhere on the Euphrates), described their village as falling under the jurisdiction of Appadana. They went to Antioch, where their case was initially not heard; they had to wait until the governor travelled next to hold an assize at Appadana itself. They asked him to have the procurator in Appadana make sure that their land, taken by violence, was restored to them until their case was heard.[300]

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[297] Dirven, *The Palmyrenes of Dura-Europos*; Edwell, *Between Rome and Persia*, 111; Eivind Heldaas Seland and Jørgen Christian Meyer, 'Palmyra and the Trade Route to the Euphrates', *ARAM Periodical* 28, no. 1–2 (1 January 2016), https://www.academia.edu/35407568/Palmyra_and_the_trade_route_to_the_Euphrates; Kaizer, 'Empire, Community, and Culture on the Middle Euphrates. Durenes, Palmyrenes, Villagers, and Soldiers', 85.

[298] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 57 Pollard states that Roman control may have extended as far as Mesene.

[299] Lippolis, 'Kifrin, avant-poste sur l'Euphrate'.

[300] Denis Feissel and Jacques Gascou, 'Documents d'archives romains inédits du Moyen Euphrate (IIIe s. après J-C) [I. Les pétitions (T. Euphr. 1 à 5)]', *Journal des Savants* 1, no. 1 (1995): 65–119,

The village is described as an imperial village (kome kyriake), which indicates that Appadana was the centre of an imperial domain. Little else is known about Appadana. In P.Dura 60B the garrison commanders of Gazica, Appadana, Dura, Eddana and Biblada are instructed to offer hospitality to a Parthian envoy on his way to Septimius Severus and Caracalla. This suggests that Appadana lay in line with these settlements, around the confluence of the Khabur and the Euphrates, or at least not too far up the Khabur. Note that besides Dura, the locations of the other sites remain tentative as well.[301] The Dura papyri further show that in 219 C.E. 63 soldiers were stationed there. In P.Euphr. 3 and 4, dated to 252 and 256 C.E., Appadana is called Neapolis, suggesting that somewhere between 245 and 252 it was elevated to urban status – meaning that only a few years earlier, it seems to have acted as an assize centre without even being a city officially. Haensch however argues that it was not so much an assize centre, but that the governor, Iulius Priscus, simply intended to visit Appadana in preparation for the reconquest of Mesopotamia.[302] Thus, while from a military perspective Dura seems to have played a central role as the headquarters of the Cohors XX Palmyrenorum, in matters of jurisdiction it seems the city did not necessarily fill an intermediate level between sites like Appadana and Antioch itself.

1.2.8 Damascus and Hierapolis

From the other cities along the Syrian steppe, Damascus and Hierapolis appear to be of a rather different kind than for instance the Seleucid garrison towns in the north. There is quite some distance – 360 km - between them and they lie at the opposite ends of modern Syria, more or less equidistant from Palmyra. Climatically, they appear to share some similarities, and as far as can be determined, both seem to have been moderately large regional centres. On the other hand, as with many other cities of the Levant, their rich post-Roman history and continued habitation up to the present day obscure much of their older archaeological past.

In Damascus' case, remains of the old city wall and Umayyad mosque retain features of the Roman period, showing that it was likely a rather large city (110 to 115 hectares). The walls may either have been Augustan, or date to the second century C.E., depending on how one of the gates is dated.[303] The city boasted an enormous sanctuary to Zeus from the first century, of which the outer enclosure would have measured about 11 hectares. This would make it one of

https://doi.org/10.3406/jds.1995.1584. Note that interestingly, the document suggests that in Antioch jurisdiction took place at the baths of Hadrian.

[301] Feissel and Gascou, 104; Edwell, *Between Rome and Persia*, 70; M. L. Chaumont, 'Un Document Méconnu Concernant l'envoi d'un Ambassadeur Parthe Vers Septime Sévère (P. Dura 60 B.)', *Historia: Zeitschrift Für Alte Geschichte* 36, no. 4 (1987): 422–47.

[302] Haensch, *Capita provinciarum*, 254–55.

[303] Hammam Saad and Christophe Benech, 'Nouvelles Données Sur Le Plan Antique de Damas', in *Archéologie de l'espace Urbain* (Composition(s) urbaine(s), Presses universitaires François-Rabelais, 2013), 6–8.

the largest sanctuaries of the empire.[304] Beyond that, a clear history of the development of the city cannot be given. It occurs in written sources as early as the third millennium B.C.E., but only gained importance as an Aramean city from the beginning of the first millennium B.C.E. Already at this time, a temple to Hadad seems to have existed on the spot where the later temple to Zeus would be built.[305] Damascus retained some regional importance under subsequent Assyrian, Babylonian and Achaemenid rule – but see Ernest Will's warnings that next to nothing is known for certain. Only judging by its apparent wealth at the time of Alexander's conquest, it seems to have done reasonably well under the Achaemenids.[306]

As a Hellenistic city – first Ptolemaic, and from the end of the third century B.C.E., Seleucid – Damascus is suggested to have had at least a large temple and agora. Only under Roman rule was the sanctuary apparently enhanced to its colossal dimensions and the city organised along a rectangular grid, adorned with colonnaded streets and surrounded with walls.[307] Josephus writes that Herod constructed a theatre and a gymnasium in the city, in line with other projects he funded outside of his own kingdom.[308] An elevation to metropolitan status by Hadrian (assumed on the basis of the coinage of the city) indicates the growing relevance of the city, putting it – at least in status – on the same level as a select group of cities that mostly included provincial capitals.[309]

While the site lacks the defensive benefits of a prominent natural or manmade elevation, it benefitted from the agriculturally rich plains of the Ghouta oasis. Despite rainfall being too little for reliable rainfed agriculture (220 mm per annum) as the city lies in the rain shadow of the Anti-Lebanon, the water from the river Barada and with runoff water from the mountains provides enough to sustain a productive hinterland. This appears to have been aided especially by canalisation that may date back to the city's Aramean past.[310] Thomas Weber lists the numerous literary sources that show that the Damascene was a territory that produced wine and a great number of different cash crops, such dates, plums, terebinth and olives.[311]

Contrary to Palmyra, there is perhaps no need to look beyond its agricultural potential to explain the apparent 'success' of a somewhat marginal site which did not seem to hold any political or

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[304] Ross Burns, *Damascus : A History* (Abingdon etc: Routledge, 2005), 64, 75; Ernest Will, 'Damas Antique', *Syria* 71, no. 1/2 (1994): 40; Ball, *Rome in the East*, 184; Ball, 184.
[305] But note Millar's remarks on the rather flimsy basis for the identifcation of Hadad as a deity in Damascus: Millar, *The Roman Near East*, 315.
[306] Ball, *Rome in the East*, 184–85; Burns, *Damascus*, 14–17; Will, 'Damas Antique', 8 note 19.
[307] Will, 'Damas Antique'.
[308] Jos., *Bell. Jud.*, trans. H. St. J. Thackeray, Loeb Classical Library 203, 1927, I.422; Burns, *Damascus*, 54.
[309] Ball, *Rome in the East*, 184.
[310] Burns, *Damascus*, xvi–xix, 13.
[311] Thomas Weber, 'ΔΑΜΑΣΚΗΝΑ: Landwirtschaftliche Produkte Aus Der Oase von Damaskus Im Spiegel Griechischer Und Lateinischer Schriftquellen', *Zeitschrift Des Deutschen Palästina-Vereins (1953-)* 105 (1989): 151–65; Millar, *The Roman Near East*, 312.

military significance. No troops seem to have been stationed here, although by the time of Diocletian the city contained an armoury.[312] Even so, although there is no way to ascertain this, its enormous temple may mean that its urban economy was connected to religious functions. Furthermore, Grout suggests that the easiest explanation for the origins of the wealth of the elites that funded the city's building projects is that it came from the caravan trade.[313] If commercial considerations played a role, perhaps its location at the northern end of the Decapolis was of some importance, as there is a route between Mount Hermon and the Anti-Lebanon towards the Beqaa valley, and from there onwards to the coast at Berytus and towards Emesa in the north. There were, however, far more direct ways from Damascus to the sea, for instance by Caesarea Paneas towards Tyre, or either past Lake Tiberias or Scythopolis towards Acco. Of course, if Palmyra shows anything, it is that a city's location, or its accessibility, do not need to be optimal for it to benefit from trade.

For 'the holy city' of Hierapolis or Bambyke, nowadays Manbij, despite Cumont's suggestion that it was a city most deserving of investigation by archaeologists of the twentieth century, there has only been little actual research in the city. The 'destructive' results he witnessed, of new occupation after 'centuries of abandonment' that had for so long preserved the remains of the old city, continued.[314] Essentially, what is known now is what was known then, and mostly comes down to the details about the temple mentioned in Lucian's *De Dea Syria*, a mention by Ammianus of the city's gates and colonnaded streets in the time of Julian, and Procopius writing that the walls were reconstructed (around a smaller area) by Justinian.[315] In his 1999 survey, made difficult by not in fact being able to acquire a map of the city, Alejandro Egea Vivancos identified a theatre, studied water infrastructure and the necropolis, and suggested a likely location for the sanctuary of Atargatis.[316]

This too was a city that at least by the fourth century CE seems to have been the main centre within its region, called Εὐφρατησία, according to the later bishopric's lists and Procopius.[317] The Roman road passing it – taken by Julian's forces in the fourth century, leads from Antioch by way of Beroia and Batnai towards the river, and appears to date to Septimius Severus.[318] Despite limited rainfall, Hierapolis appears to have received considerable water from a spring, emptying

[312] Burns, *Damascus*, 85.
[313] Grout, 'The Role of Palmyrene Temples in Long-Distance Trade in the Roman Near East', 57.
[314] Cumont, *Études Syriennes*, 36–40.
[315] Lucian, *De Dea Syria*, trans. John Garstang, 1913, 30–36; Amm. Marc., trans. Rolfe, Loeb Classical Library 300, 1950, 23.2.6-7; Proc., *De Aedif.*, trans. H. B. Dewing and Glanville Downey, Loeb Classical Library 343, 1940, II.9.12; Cumont, *Études Syriennes*, 25; Millar, *The Roman Near East*, 243.
[316] Alejandro Egea Vivancos, 'Poblamiento romano en el Alto Éufrates Sirio' (Ph.D., Murcia, Universidad de Murcia, 2002), 320–59.
[317] Jones, *The Cities of the Eastern Roman Provinces*, 532 table 34; Cumont, *Études Syriennes*, 226.
[318] Cumont, *Études Syriennes*, 16–17.

into a (sacred) pond as Procopius writes, which still existed a century ago.[319] The area also received water from a southern tributary stream of the Sajur, itself emptying into the Euphrates. No written sources suggest agricultural abundance, as existed at Damascus, but in Islamic times, the land around wadis and rivers in the area was irrigated, and Manbij apparently exported raisins.[320] There is only one indication of what may have been the cause of the city's importance: while knowing that such a statement should not be taken at face value, it is nonetheless telling that Lucian writes that for Hierapolis the temple was the main source of income for the city, with money and valuables ("which are exchanged for silver and gold") being brought in by visitors from all parts of the Levant.[321]

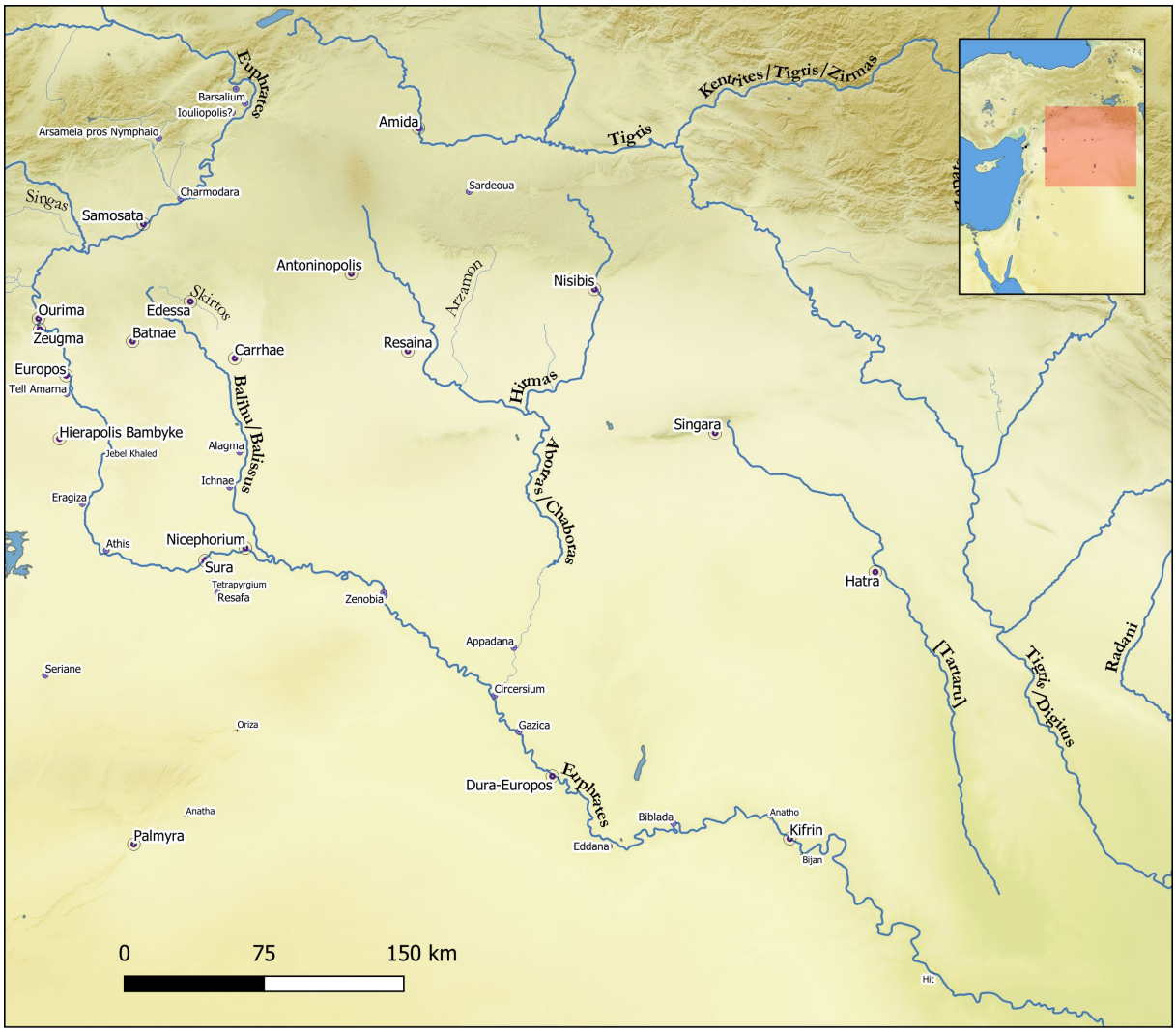

Figure 18 Roman cities in Mesopotamia

[319] Cumont, *Études Syriennes*.
[320] A. Asa Eger, *The Islamic-Byzantine Frontier: Interaction and Exchange Among Muslim and Christian Communities* (I.B.Tauris, 2015), 70–71.
[321] Lucian, *De Dea Syria*, 10.

1.2.9 Mesopotamian conquests and a look to the East

As David and Joan Oates remarked in 1959, while the Romans held on to eastern Mesopotamia for around 170 years (and several centuries longer to western Mesopotamia), Roman occupation seemed to have hardly left a mark on its cities.[322] While this is quite an overstatement, it remains a fact that almost all of the Mesopotamian cities were overbuilt in later periods. Modern urban expansion in fact only became more intensive since the article by Oates and Oates, leaving any Roman or Parthian finds firmly out of reach. One exception is Hatra, but this city probably only saw the presence of Roman troops for several years and could therefore hardly be understood as a Roman city. The limitations common to studying cities in the Roman East – a limited archaeological record, few written sources and to some degree a different scholarly focus on earlier periods, are thus even more present in this region.

The available evidence suggests that the handful of cities of this region were sizeable strongholds controlling considerable areas around them. These mostly lay on two parallel lines; from Zeugma to Nisibis and from Zeugma to Singara. The Roman conquest of the region seems to have focused on these cities, with at least in the Severan period evidence of smaller military installations or forts along the roads between them (e.g. at Ain Sinu and Tell Brak). This increased fortification also coincides with the building of desert forts in Arabia at several oases, as discussed in the following chapter.[323]

Mesopotamia was conquered in the 140s B.C.E. from the Seleucids by the Parthian Mithridates II, essentially changing the Euphrates into a border for the first time in two centuries. While to the west the Roman empire was increasing and expanding its control, Mesopotamia remained within the Parthian sphere of influence. Besides Armenian inroads into the region during the Mithridatic wars, some attempts at expansion beyond the Euphrates were made by both Romans and Parthians in the first century B.C.E., such as Crassus' failed campaign in 53 B.C.E. and the short-lived Parthian invasion in 40/39 B.C.E. After that Mesopotamia remained relatively calm, with the Roman-Parthian conflict mostly focussed on Armenia (note in that context that Adiabene was occupied for some time in the 50s C.E. by Armenian troops).[324]

Only from 114 to 117 C.E. did Trajan's campaign bring warfare into Mesopotamia itself, with his armies reaching beyond the Parthian capital of Ctesiphon and down to the Persian Gulf. The

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[322] David Oates and Joan Oates, 'Ain Sinu: A Roman Frontier Post in Northern Iraq', *IRAQ* 21, no. 2 (October 1959): 207–42, https://doi.org/10.2307/4199660.
[323] Oates and Oates; Kennedy, *Rome's Desert Frontier*; Lidewijde de Jong and Rocco Palermo, 'Living on the Edge: The Roman Empire in the North Mesopotamian Steppe', in *The Archaeology of Imperial Landscapes: A Comparative Study of Empires in the Ancient Near East and Mediterranean World*, ed. Bleda S. Düring and Tesse D. Stek (Cambridge: Cambridge University Press, 2018), 251.
[324] Wagner, *Die Römer an Euphrat und Tigris*, 36–40.

ruler of Edessa changed his allegiance to Rome rather than resisting. The cities of the newly conquered region, including Edessa, appear to have revolted within a year, however, during which Trajan failed to (re?) conquer Hatra, while Edessa did fall to Roman troops. Hadrian withdrew the Roman forces and ceded all occupied territory after Trajan died, although in part this may only have been a shift from direct to indirect control. It took several decades before the armies of Lucius Verus would attempt to retake the region again between 163 and 166 C.E[325] Direct rule was expanded at least as far as Nisibis, but it is not entirely clear to what extent influence was maintained in the region over the next 40 years. Septimius Severus was the next to undertake a large-scale Parthian war, consolidating Rome's position in the region.[326]

With Roman control established this late, it is apparent that its influence on the urban network was even less effective in Mesopotamia than in the west. Most cities appear to have been Hellenistic foundations, but as in the Syrian provinces, generally dated back further. Edessa is an exception, since the town may have been little more than a waystation before Alexander's conquest (if it existed at all), but still had become a powerful regional centre by the time Rome began interfering in its affairs.[327] Rome made no attempts at new foundations, but garrisons were placed in existing settlements.

For Hatra and Edessa it is clear that under the Parthians they were ruled by semi-autonomous dynasties, somewhat similar to the client kingdoms Rome had maintained in the region as well. Edessa was still an independent principality at the beginning of the third century CE, albeit allegiant to Rome, with most of its former territory now falling under direct Roman control. An inscription from a nearby village to the northwest mentions the border between the Roman province of Osrhoene and the Edessene kingdom. It was fully annexed by Caracalla into the Roman province.[328] The exact ways other cities were governed, or within which kingdoms they fell, is unclear. Before the Roman incursions the Osrhoene kingdom appears to have covered large parts of northern Mesopotamia, perhaps the whole area between the Euphrates and the Khabur, although nearby Batnae seems to have been the centre of a small principality called Anthemusia – as Ross writes, at least until Trajan's invasion.[329] Other parts of eastern Mesopotamia may have been part of the Parthian Adiabene kingdom, with Arbela as its capital

[325] Charles R. Whittaker, 'Frontiers', in *The Cambridge Ancient History: Volume 11: The High Empire, A.D. 70-192*, ed. Alan K. Bowman, Peter Garnsey, and Dominic Rathbone, 2nd ed., vol. 11, The Cambridge Ancient History (Cambridge: Cambridge University Press, 2008), 309–12, https://doi.org/10.1017/CHOL9780521302005.013.
[326] Wagner, *Die Römer an Euphrat und Tigris*; Sommer, *Roms Orientalische Steppengrenze*.
[327] Steven K. Ross, *Roman Edessa : Politics and Culture on the Eastern Fringes of the Roman Empire, 114-242 CE* (London etc: Routledge, 2001), 7.
[328] Ross, 51; Wagner, *Die Römer an Euphrat und Tigris*.
[329] Ross, *Roman Edessa*, 23, 26–28; J. B. Segal, 'Abgar', Encyclopaedia Iranica, 2011, http://www.iranicaonline.org/articles/abgar-dynasty-of-edessa-2nd-century-bc-to-3rd-century-ad.

(modern Erbil, east of the Tigris). The core of the Adiabene, however, lay on the east bank of the Tigris.[330]

Even in the case of Nisibis, for which there is relatively much information, the account is quite muddled. It was held by the Armenians for several decades, except for a brief time after it was conquered by Lucullus in 68 B.C.E. It then returned to Armenian hands, before being taken over by the Parthians again. It was granted to one Izates around 36 C.E. who governed it for two decades and was succeeded by his older brother.[331] What exactly happened until the conquest of the city by Trajan's forces, or afterwards, until its conquest by Lucius Verus remains unclear – perhaps it was part of the Adiabene or Osrhoene, perhaps it remained a semi-independent vassal. After Verus' campaign, it seems to have stayed Roman, as Cassius Dio mentions a joint attack on the city by Adiabene and Osrhoene during the conflict between Septimius Severus and Pescennius Niger.[332]

Albert de Jong argues the important point that the 'independence' of the western parts of the Parthian empire has been overstated, or at least not defined properly. [333] He makes a reasonable case that in loanwords, cultural expression and emulation the reach of the Parthian 'orbit' is very present, extending also into Armenia and Georgia. The evidence for independence amounts in his view to no more than the knowledge that the various regions had their own dynasties, sometimes related to the Arsacid rulers, sometimes not. To what degree the 'King of Kings' had or did not have influence over them remains open, but a short story by Josephus' about Izates of Adiabene suggests that privileges could both be granted (and taken away), not dissimilar to how under the Seleucids local autonomy was little more than the privilege to pass local laws.[334] Of course, Edessa changing allegiance to Trajan suggests that in a sense Parthian control was limited on the outskirts of the empire. Still, as Peter Edwell also indicates, Edessa's hand was forced by the Roman capture of Nisibis and Batnae.[335] At the point that Lucius Verus installed a

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[330] Michał Marciak, *Sophene, Gordyene, and Adiabene* (Leiden: Brill, 2017), 366–69.
[331] Karlheinz Kessler, 'Nisibis', in *Der Neue Pauly* (Brill, 1 October 2006), https://referenceworks.brillonline.com/entries/der-neue-pauly/nisibis-e823870; Jos., *Ant.*, XX.92.
[332] Cassius Dio, trans. Earnest Cary and Herbert B. Foster, Loeb Classical Library 32, 1914, 75; Ross, *Roman Edessa*, 48.
[333] Albert de Jong, 'Hatra and the Parthian Commonwealth', in *Hatra : Politics, Culture and Religion between Parthia and Rome*, ed. Lucinda Dirven, 1st ed. (Stuttgart: Franz Steiner Verlag, 2013), 143–60.
[334] de Jong, 150; After Laurent Capdetrey, *Le Pouvoir Séleucide: Territoire, Administration, Finances d'un Royaume Hellénistique (312-129 Avant J.-C.)*, Collection Histoire (Rennes: Presses Universitaires de Rennes, 2007).
[335] Peter M. Edwell, 'Osrhoene and Mesopotamia between Rome and Arsacid Parthia', in *Arsacids, Romans and Local Elites: Cross-Cultural Interactions of the Parthian Empire*, ed. Jason Schulde and Benjamin Reubin (Havertown, UNITED STATES: Oxbow Books, 2017), 114–16, http://ebookcentral.proquest.com/lib/kb/detail.action?docID=4830376.

pro-Roman ruler, a member of the dynasty who had lived in Roman territory, Edessa fit firmly into the template of a Roman client state.

In his study on visual culture in Hatra, Björn Anderson shows strong Roman influences, but even then firmly states, after De Jong, that "there can be no question that Hatra was, politically, a fully Parthian city during the second century C.E.."[336] Hatra's shift towards Rome in 230 can only be seen as a local reaction to the rise of the Sassanids and their far more centralised approach to rule in comparison to the Arsacids. Where in the case of Dura and Palmyra imperial (Roman) influence is being downplayed or at least pushed towards a later date by scholars like Peter Edwell and Andreas Luther, further into Mesopotamia recent scholarship seems to argue for a larger role of (the Parthian) empire.

At the beginning of the third century, Carrhae, Edessa, Resaina, Nisibis and Singara had received the status of colony and metropolis. In some cases this may have been already granted under Lucius Verus, but most were certainly granted that (again) by Septimius, or in the case of Edessa, Caracalla or Elegabalus.[337] Septimius Severus created the new province of Mesopotamia in 199 and made Nisibis its capital.[338] At least Nisibis, Singara and Resaina seem to have received a garrison, and Cassius Dio mentions that Nisibis already had major fortifications and a citadel when Lucullus besieged and captured it in the first century B.C.E.[339] However, archaeological finds from the city are limited to five columns and part of a fourth century church.[340] Although it was taken at least twice by the Parthians during the third century, it was reconquered each time, and was able to withstand three sieges in the middle of the fourth century. Only with the death of Julian in 363 was the city ceded to the Persians together with Singara.[341]

For the town of Batnae we know little more than that it struck its own coins, if coins with the legend Anthemusia do indeed refer to this town.[342] Other than that, Ammianus Marcellinus writes that the town held a rich annual fair, including goods from India and China.[343] Carrhae, or Harran, had already been an important fortified town in the second millennium B.C.E., and was

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[336] Björn Anderson, 'Beyond Rome/Parthia: Intersections of Local and Imperial Traditions in the Visual Record of Hatra', in *Arsacids, Romans and Local Elites: Cross-Cultural Interactions of the Parthian Empire*, ed. Jason Schulde and Benjamin Reubin (Havertown, UNITED STATES: Oxbow Books, 2017), 141, http://ebookcentral.proquest.com/lib/kb/detail.action?docID=4830376.
[337] Jones, *The Cities of the Eastern Roman Provinces*, 221–22; Millar, 'The Roman Coloniae of the Near East: A Study of Cultural Relations', 38–39, 46.
[338] Rocco Palermo, 'Nisibis, Capital of the Province of Mesopotamia: Some Historical and Archaeological Perspectives', *Journal of Roman Archaeology* 27 (January 2014): 199, https://doi.org/10.1017/S1047759414001354.
[339] Palermo, 463; Cassius Dio, 36.6-7.
[340] Palermo, 'Nisibis, Capital of the Province of Mesopotamia', 465–66.
[341] Palermo, 462.
[342] But compare Jones, *The Cities of the Eastern Roman Provinces*, 442, 505.
[343] Amm. Marc., 1.4.3.3.

in the Roman-Imperial period famous for the defeat of Crassus in 53 B.C.E. and the assassination of Caracalla. Like Nisibis and Batnae, the city however reveals little about its urban nature for the Roman period. The remaining city walls, castle and other finds date to later periods. At least we know that the later Roman period walled area covered 107 hectares.[344]

For Singara, Oates argues that the walls likely date to the fourth century, for which period Ammianus describes the destruction of a recently repaired tower by a battering ram during the final siege by Shapur III in 360 C.E.[345] They furthermore bear a resemblance to those of Amida, from the same period. As Rome's most forward post towards the Parthians, and being taken by both empires multiple times during the third and fourth centuries, it seems likely that Singara was a fortified position in that period as well. Again, any finds from the city date no earlier than the fourth century. The protected urban area only measures around 20 hectares, putting it on a similar level to for instance Kifrin (on the Euphrates), another fortified town on the edge of Parthian territory.[346]

For Edessa, archaeology tells us virtually nothing; only later fortifications have been identified, protecting an area of around 140 hectares. The Chronicle of Edessa, a fifth to sixth century Syriac source, gives a description of a flood that took place in 201 C.E., during the reign of Septimius Severus (in Edessa, that of Abgar VIII). As Ross highlights, the text attests to the presence of a palace complex with porticoes and courtyards, city walls, and a colonnade with shops ("And King Abgar ordered that all those who resided in the portico and carried out their occupation opposite the river should not pass the night in their booths".[347]) A Christian church, also mentioned, may be a later interpolation into the text.[348] The emerging picture is that of a monumentalised royal city with similar adornments found in the capitals of Rome's client kingdoms to the west, such as Petra and Jerusalem. Without actual archaeological evidence, questions related to the expression of local power through architectural urban programs and the emulation of imperial styles cannot be answered.

With the Roman capture of Nisibis and Singara, the kingdom of Hatra became the frontier of the Persian empire. If Cassius Dio is reliable, the city was a rather insignificant place by the time of Trajan's failed siege, but had become a major city 60 years later, when Septimius Severus failed

[344] Seton Lloyd, William Brice, and C. J. Gadd, 'Harran', *Anatolian Studies* 1 (December 1951): 77–111, https://doi.org/10.2307/3642359; Lidewijde de Jong, 'Mallowan's Marshes: The Archaeology of the Balikh Valley under Roman and Byzantine Rule', *Zeitschrift Für Orient-Archäologie (ZOrA)* 4 (2011): 269.
[345] Amm. Marc., 20.6.3-7.
[346] David Oates, *Studies in the Ancient History of Northern Iraq* (London [etc.]: The Oxford University Press, 1968), 103.
[347] *Chron. Min.*, trans. J. B. Segal, 1970.
[348] Ross, *Roman Edessa*, 107–8.

to take it.[349] The remains of the city show it as it was when the city fell after a three-year Sassanian siege, in 240. At that point, it was a vast city, its almost perfectly circular inner-city wall which had been constructed in 151-152 C.E, surrounding an area of 310 hectares – finds do suggest that a smaller wall had existed before. Moreover, aerial imagery and surveys strongly suggest that the entire area within the inner wall was built up. At its centre, a considerable part was taken up by its temple district measuring no less than 14 hectares. The earthen outer wall may have found its origins in one of the Roman or Sassanian sieges, or perhaps served to protect outlying areas from raiders.[350]

With agricultural conditions even poorer than in Palmyra, it is hard to imagine how such a large community could have maintained itself. As mentioned before, there are always several possibilities for dry-land farming, and huge cisterns throughout the city suggest that water catchment may have played an important role. Diversion and catchment of water from the wadi Tarthar, lying at 3 kilometres distance, may also have occurred, although evidence is lacking. However, do note Enrico Foietta's studies showing that the direct surroundings of the city in fact are far more water rich than supposed: within the plain of Hatra, specific conditions lead to consistent availablility of ground water, close to the surface. Numerous wells show that this water was indeed accessed in ancient times as well.[351]

Sommer argues that like Palmyra, Hatra's economy was based on commerce. The city lacks any inscriptions that show evidence for trade. However, the colossal sanctuary was unlikely to have been funded by external rulers, instead being funded by local investment. Neither agriculture nor husbandry would have provided enough wealth to finance this, leaving trade as the only likely explanation.[352] The argument that there would be no Arsacid imperial investment in the city, does of course depend on the idea that the city fell outside of the Arsacid sphere of influence. But, even if imperial influence was greater than Sommer allows for, one could still wonder what would drove state authorities to invest in a temple complex in a somewhat remote stronghold. Furthermore, the city flourished exactly at the time when its position became more liminal, not dissimilar to Palmyra's position between the empires – a position that could very

[349] Cassius Dio, 68.31, 72.11-12; Lucinda Dirven, 'Hatra, Stad van de Zonnegod - Sociale Achtergronden van Een Heilige Plaats', *Tijdschrift Voor Geschiedenis* 126, no. 1 (1 March 2013): 4–15, https://doi.org/10.5117/TVGESCH2013.1.DIRV.
[350] Sommer, *Roms Orientalische Steppengrenze*, 358.
[351] Enrico Foietta, 'The Kingdom of Hatra during the Second and Third Centuries AD: Frontiers, Ecological Limits, Settlements and Landmarks', in *Imperial Connections. Interactions and Expansion from Assyria to the Roman Period. Volume 2. Proceedings of the 5th "Broadening Horizons" Conference (Udine 5-8 June 2017)*, ed. Katia Gavagnin and Rocco Palermo (Trieste: EUT Edizioni Università di Trieste, 2020), 303–4, http://hdl.handle.net/10077/31112.
[352] Sommer, *Roms Orientalische Steppengrenze*, 387.

well have benefitted a Hatrene trade community. On the other hand, this position would also allow for the city to claim a sizeable territory.[353]

At the northern end of Mesopotamia, north of Osrhoene, we enter the region of the former kingdom of Sophene. The subregion south of the Tigris, called Ingilene, may have come to lie under direct Roman control. There are some indications of Roman military presence just after the peace treaty of 63 C.E., but even then, the exact status of this region remains somewhat unclear. In this region, we find the city of Amida. Its location, lying on a defensible position at the crossroads from Melitene to Tigranokerta and from Melitene to Nisibis, meant it was a strategically important site.[354] The Medieval walls, for which an inscription places the latest modifications around 1067 C.E., surrounded an area of around 165 hectares. It is suggested that these walls match the layout of the Roman circuit.[355] However, these fortifications were clearly a Late Roman development. As mentioned earlier, their similarity to those of Singara suggests a 4th century construction date. Marcellinus describes this place as having been a small city when it was (first?) fortified by Constantius II in the early fourth century. By no standard would a 165-hectare city be considered small at that time. We lack good archaeological sources for the city, but it seems that within our period of study, it probably only played a secondary role.[356] Even so, on the Roman side of the Tigris the closest major urban settlements such as Samosata, Edessa and Nisibis, were over a hundred kilometres away. The same beyond the Tigris: the closest Armenian major cities, Arsamosata and Tigranokerta (later Roman Martyropolis) lay at a similar distance. On a lower order of size, Antoninopolis (also called Tela) which lay 80 km towards the south in northern Osrhoene, had only been raised to urban status at the end of the second century. Only Armenian Karkathiokerta was nearby, 40 km across the Tigris to the north. It seems therefore that before the Roman-Sassanian wars, this would remain a rather remote area without the levels of urbanisation seen in Syria.

We get some additional insight into how the settlement pattern may have developed by looking back to the south, outside of the larger cities. Here, additional information is available from surveys and excavations along the Balikh (between Edessa and Nicephorium) and the upper Khabur valleys (southeast of Nisibis). Recently Lidewijde de Jong and Rocco Palermo published overviews of these areas. In the Balikh valley, these settlements mostly averaged around 1.5 hectares. A few were slightly larger, up to 4 hectares, while the largest, Tell es Sadde (perhaps

[353] Foietta, 'The Kingdom of Hatra during the Second and Third Centuries AD: Frontiers, Ecological Limits, Settlements and Landmarks'.
[354] Michał Marciak, 'The Cultural Landscape of Sophene from Hellenistic to Early Byzantine Times', *Göttinger Forum Für Altertumswissenschaft* 17 (2014): 36.
[355] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 290; Pollard, fig. 10.
[356] Marciak, 'The Cultural Landscape of Sophene from Hellenistic to Early Byzantine Times', 36.

ancient Ichnae), declined from 9 hectares in the Parthian period, to 5 in the Roman period.[357] As De Jong and Palermo show, between the second century B.C.E. and the first C.E., in both the Balikh and upper Khabur valleys, settlement was relatively stable or even increased. Finds suggest only a limited interaction with either the Parthian or Roman empires, and conflicts between the empires do not seem to have been reflected at this level in any way. The following three centuries – a finer time resolution was not possible to achieve – suggest a population shift away from older settlements, and quite possibly a decline in the number and size of settlements in both regions. Data for this period are poor, however, and many proposed dates remain insecure. Their suggestion is that while the large urban centres may have done well, the Roman empire failed to integrate these remote rural areas, with locals perhaps turning to less sedentary lifestyles.[358]

1.3 General discussion

1.3.1 Public buildings

Table 1 shows the known public buildings for the northern provinces. The most monumental places closely match those in the upper tiers of the settlement size spectrum. This is, however, heavily influenced by both a research focus on such places, as well as a focus on written sources, mostly discussing major rather than minor cities. Compare the cases of Antioch, for which we would have a reasonable idea about its monumental features even if the archaeological data were to be completely disregarded, with the still sizeable city of Cyrrhus, of which we can say little more than that a legion was based there, as mentioned in the written sources. Therefore, it would likely have been adorned with at least the infrastructure related to entertainment, bathing and religion. Overall, structures related to commercial infrastructure are the most prevalent. Furthermore, it is evident that military structures are far less prominent in Syria Phoenice than in Coele and Mesopotamia.

On the other end of the spectrum, places with only a temple or sanctuary tend to be little more than larger villages. For this area, most of these are known from the study of Tchalenko in the limestone massifs. It would stand to reason that the number of known religious buildings would be vastly higher if other rural regions had a similar level of standing remains. Only in the case of Daphne does its monumental complement lend a rather urban aspect to the settlement. This place, however, as will be discussed in 4.2 below, is a rather extraordinary secondary settlement

[357] de Jong, 'Mallowan's Marshes: The Archaeology of the Balikh Valley under Roman and Byzantine Rule', 266.
[358] de Jong and Palermo, 'Living on the Edge: The Roman Empire in the North Mesopotamian Steppe', 258–59.

in the Antiochene. As the excavations of the 1930s indicated, this was a settlement of rather spread-out elite residences, perhaps home of the rich and famous of the great city. At least according to the *Historia Augusta*, Lucius Verus, co-emperor of Marcus Aurelius, spent his summers there.[359]

Unlike in the Southern Levant, it is not possible in the north to really indicate specific construction phases. In the first place, a large number of these buildings still have very wide date ranges, whereas in the south there is a somewhat larger number of buildings more narrowly dated to the reign of specific emperors, showing at least two somewhat more narrowly defined clusters of construction: one in the middle of the second century, and one under the Severi. On the other hand, it is known that after the great earthquake of 115 C.E. a considerable (re)construction effort was undertaken in the northern Syrian cities, but only in a limited number of cases can a (re-) construction be linked to this event – for example, the construction of the colonnade and the repairs of a nymphaeum in Apamea.

[359] *SHA*, trans. David Magie and David Rohrbacher, Loeb Classical Library 139, 2022, Verus VII, 1-10; Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest*, 101.

Table 1 Public buildings in cities the northern provinces

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	Status buildings	*Grand Total*
Coele Syria	**14**	**31**	**6**	**11**	**18**	**12**	**2**	***94***
Dura-Europos		3	3	1	2	6		*15*
Antioch	5	4	1	3	1		1	*15*
Apamea	3	4	1	1	2	2		*13*
Seleucia Pieria	2	4	1	1	2	1		*11*
Beroia	1	3			1	1		*6*
Cyrrus		3		1	2			*6*
Laodicea ad Mare	1	2		1	1		1	*6*
Zeugma		1		1	2			*4*
Larissa		1		1	1			*3*
Hierapolis Bambyke	1	1				1		*3*
Gabala		2		1				*3*
Europos		2				1		*3*
Chalcis ad Belum		1			1			*2*
Kifrin					2			*2*
Epiphaneia	1							*1*
Sura					1			*1*
Syria-Phoenice	**18**	**22**	**1**	**18**	**6**	**15**	**6**	***86***
Palmyra	3	4		2	0	6	3	*18*
Damascus	2	3		4	3	1	2	*15*
Berytus	3	3		3		1		*10*
Tyrus	1	3		3			1	*8*
Heliopolis	2	1		1	1	3		*8*
Caesarea Paneas	2	2	1	1		1		*7*
Byblos	1	2		1		1		*5*
Akko	2	1		1				*4*
Arados		1			1	1		*3*
Tripolis	2	1						*3*
Sidon		1		1				*2*
Arethusa						1		*1*

Raphaneae					1			*1*
Botrys				1				*1*
Mesopotamia	**1**	**1**			**3**	**1**		***6***
Nisibis	1	1			2	1		*5*
Singara					1			*1*
Osrhoena	**1**				**1**	**1**		***3***
Edessa	1				1			*2*
Carrhae						1		*1*
Grand Total	**34**	**54**	**7**	**29**	**28**	**29**	**8**	***189***

Table 2 Known public buildings in non-urban central places

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	*Grand Total*
Syria-Coele	**4**	**5**	**1**	**2**	**2**	**3**	***17***
Daphne	2		1	2			*5*
Mogiza	1	1				1	*3*
Eragiza					2		*2*
Derkoush		2					*2*
Meleagrum		1					*1*
Jebel Sheikh Barakat						1	*1*
Gephyra		1					*1*
Ad Dana	1						*1*
Bāqirḥā						1	*1*
Syria-Phoenice		**1**		**1**		**1**	***3***
Marathos		1		1		1	*3*
Grand Total	**4**	**6**	**1**	**3**	**2**	**4**	***20***

1.3.2 Regional conclusions

1.3.2.1 Geographical factors

One of the main factors in determining the shape of the urban system in Syria lies in its geography. As anywhere, the presence of vital resources can make one location preferable over another, while physical obstacles such as mountain ranges can create hard to overcome limits to the growth potential of a settlement. As also indicated in the Introduction, a very obvious example of that interplay between resources and space can be found along the coastal zone of Syria Coele and Syria Phoenice. Here, the presence of a coastal mountain range caused some of the highest levels of precipitation within the Roman-controlled Levant, and were the source of a number of both smaller and larger rivers like the Eleutheros and the Litas. In combination with good soils, this meant that the coastal plains were well-suited for rainfed agriculture. Coupled with access to the sea for fishing and trade, a number of reasonable harbour sites and an abundance of wood, this made it an attractive region for settlement. And indeed, the coast was dotted with settlements, many of which can be traced back to the Early Bronze Age at least. At the same time, these settlements were locked in between the sea and the mountains, competing for the limited space. The largest were located in the areas where the width of the coastal plains was at its widest, such as Berytus and Akko in the south, and Laodicea to the north. While on the narrower strips of land, even though information is sparse, small towns like Porphyreon competed amongst themselves for space.

In that same vein, inland we find Heliopolis in a similar but sizeable strip of land, hemmed in between the Lebanon and anti-Lebanon, perhaps growing as large as it did for lack of competition. Antioch and Apamea, the largest cities of the region – and to a lesser degree Emesa – lay on the edge of large and well-watered inland plains on the other side of the coastal mountain range. The plain of Antioch is wide, but still finds its limit in the Limestone Massif. Only the agricultural zones of Apamea and Emesa to the south were not closed in, eventually opening up to the Syrian Desert. Perhaps western Syria can thus be best described as fertile strips of agricultural plains, both inviting and limiting settlement, with the largest strips housing the largest towns.

Of course, as will be discussed in more detail in Chapter 3, these are merely the broad strokes to paint a picture. On the one hand, it is clear that settlement was not limited to 'optimal' locations. In the south, Mount Hermon saw a high density of cult sites and villages, and up north the entirety of the Limestone Massif was at some point covered with villages. On the other hand, limited agricultural capabilities did not always limit settlement size. The prime example for this is Seleucia Pieria: its walls enclosed one of the largest settlements of the region. The city's territory contained a decent coastal plain in comparison to some other coastal towns, but it was

still enclosed by difficult terrain, bordered by Antioch, and nowhere near large enough to sustain a city of 250 hectares. The city did however exist, and flourish.

When we turn to the interior zone of the northern Roman Levant, Rocco Palermo gives a good summary of what becomes a core geographic determinant: "[…] it is clear that water was one of the crucial issues upon which imperial control depended in antiquity. Military movement, the sustainability of civilian settlement, and the capacity of empires to cope with the conditions imposed by the climate, along with political confrontation, all were governed by access to water."[360] Everything was influenced by water; even the layout of the road network was determined by the availability of water points, and as such the most suitable routes were determined long before the Romans came along.[361]

As indicated in the Introduction, from the Damascene territory in the southwest up to Nisibis and Singara in the northeast, the major settlements lie on the edge of the preferential zone for reliable rain-fed agriculture. In fact, the 250 mm isohiyet was a major border of the sedentary world, before truly entering the Syrian steppe zone. Still, even with more than 250 mm rain per year, considerable swathes of land should already be considered part of the semi-arid zone.

The northern end of Syria Coele, with the cities of the Commagene and Zeugma, as well as the north of the Mesopotamian province towards Armenia, still sit firmly within the optimal zone for dry-land farming, and show similar benefits found in the coastal zones, such as high rainfall and additional water sources from rivers and mountain run-off. But for the remaining area, as seen above, for each city a specific explanation is given as to how that particular location was (or was adapted to be) suitable for long term settlement.

1.3.2.2 Historical trajectories

The second major aspect of the Syrian makeup of the settlement pattern is strong continuity from the Hellenistic period, and we can see that path dependency played a large role in the development of the Roman urban system. Concerning the location of cities, we find very little change throughout the centuries of Roman rule. Only three new major cities are formed in this period: Heliopolis and Emesa, both lying on the Orontes, and the nearby garrison town Raphanea. A few cities still present in the Hellenistic period declined before or during the Roman period, such as Chalcis sub Libano. In the latter's case the 'void' it left was filled by the new city founded in its vicinity: Heliopolis. And even then, decline does not necessarily mean complete disappearance – sources simply stopped mentioning Chalcis, but there is no conclusive evidence

[360] Rocco Palermo, *On the Edge of Empires: North Mesopotamia During the Roman Period (2nd - 4th C. CE)* (Florence, UNITED STATES: Taylor & Francis Group, 2019), 16, http://ebookcentral.proquest.com/lib/kb/detail.action?docID=5702795.
[361] Palermo, 20.

that people no longer lived there. The prominence of Emesa seems to have come at the cost of that of Arethusa, the original capital of the Emesene kingdom. Even so, Arethusa remained a city in its own right throughout the Roman period, even if it was eclipsed by its neighbour. And while the Emesenes remained a semi-independent people, this gave the Romans reason to establish a permanent military base nearby at Raphanea, which in turn led to the development of a civilian settlement.

For most cities we see that their development trajectory found its starting impulse in the Hellenistic period. In his *Cities of Seleucid Syria*, John Grainger states that, at the time of Alexander's conquests, there were "only faint sparks of urban life in Syria."[362] In his view, the Assyrian conquests had brought destruction for most of the cities in the region, and by the time the Macedonians showed up, there was little more in the region than poor villages. He is entirely right that the Assyrian, and later Babylonian and Achaemenid rule of the region went hand in hand with violent destruction and deportations. In many cases, however, this was followed by reconstruction and/or resettlement, possibly with people deported from other parts of the empires. These were periods that also saw economic development and urban evolution in the4ir own right.[363] The idea that there were no cities after the Assyrian conquest should thus be considered an overstatement, as there was a good number of cities that survived or were revived. Take for example a number of Assyrian provincial capitals, such as Tell Taʿyinat, Tell Rifʿat (Arpad) and Ḥamā (as well as Megiddo, Ashkelon and Ekron in the southern Levant).[364] However, surviving the Assyrian conquest did not mean surviving up to the Roman period: Megiddo and Carchemish for instance were destroyed in the early 7th century B.C.E. in Egyptian assaults. And throughout the Achaemenid period, the final two centuries before Hellenistic conquest, sources for the region are very limited indeed. Some cities are well known, such as the Phoenician cities, but in most cases we have little to go on.[365]

Mostly, we find that Hellenistic settlements filled the same geographical niches as earlier cities, even in cases where it is clear that there had been no instalment of a Greek community into an existing city. Antioch itself is the obvious example, situated on the edge of the ʿAmuq valley. Previous occupation for Antioch itself cannot be ascertained, but the plain had certainly been attractive in earlier periods as well, and saw major Bronze Age settlements at Tell Taʿyinat and

[362] Grainger, *The Cities of Seleukid Syria*, 23.
[363] Benjamin W. Porter, 'Assembling the Iron Age Levant: The Archaeology of Communities, Polities, and Imperial Peripheries', *Journal of Archaeological Research* 24, no. 4 (1 December 2016): 397, https://doi.org/10.1007/s10814-016-9093-8.
[364] Michael C. Astour, review of *Review of The Cities of Seleukid Syria*, by John D. Grainger, *Journal of the American Oriental Society* 114, no. 2 (1994): 267–70, https://doi.org/10.2307/605837; Porter, 'Assembling the Iron Age Levant', 399.
[365] Josette Elayi, 'Achaemenid Persia and the Levant', *The Oxford Handbook of the Archaeology of the Levant*, 1 November 2013, https://doi.org/10.1093/oxfordhb/9780199212972.013.008.

Tell Atchana. On the other hand, Larissa is a good example of a city already known by that name in Egyptian sources, 'refounded' by the Seleucids – suggesting little more than the settlement of veterans.

Essentially, whether taking over existing settlements or identifying and filling the same niches that had served earlier settlements, the towns that received urban status in the Hellenistic period were the same that would serve as the administrative urban centres of the Roman period. In that sense, the Hellenistic period gave an initial shape to the urban fabric of Syria that would reverberate for centuries into the Roman period and beyond.

In this context we must also consider Pierre Briant's suggestion of the continuation, from the Achaemenid into the Hellenistic period, of self-governing village communities and villages as independent fiscal units.[366] Like Syria Palaestina in the south, for the north there are some indications that this system also continued into the Roman period: at the end of Pliny's lists of Syria we find references to known towns and villages, such as the Gindareni, likely referring to the people of Gindaros, a large village which would probably come to fall under the territory of Antioch. The *Natural History* also mentions several named and unnamed tetrarchies, peoples and races that do not suggest an urban settlement.[367] Most of these places are lumped together by Pliny without any clearer reference to their location, apart from the statement that they were located inland; some of these may have been villages and communities in other parts of Roman Syria.[368]

Unlike the provinces to the south, very few of these communities reappear in the bishopric lists several centuries later. Other regions do see new villages, towns and non-sedentary peoples appear in the bishopric lists, such as Iabruda and Maglula east of the Anti-Lebanon, scenarchiai ('rule of tents') and a number of village groups aptly named tricomia, tetracomia, pentacomia and the like, suggesting strongly that the practice of granting self-government to non-urban communities continued on the fringes of the urban world.[369] In western Syria, however, only an imperial estate formed out of the former tetrarchy of Chalcis, the 'saltus Gonaiticus', hints at a non-urban controlled unit.

Looking eastwards, for the cities in the interior their fate was strongly influenced by the changes in (imperial) control, be it Achaemenid, Seleucid, Roman, Arsacid or Sassanid, or any of the

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[366] Pierre Briant, 'Villages Et Communautés Villageoises D'Asie Achéménide Et Hellénistique', *Journal of the Economic and Social History of the Orient* 18, no. 1 (1 January 1975): 165–88, https://doi.org/10.1163/156852075X00092.

[367] Plin., *HN*, 5.19 For instance the two tetrachies "quae granucomatitae vocantur" suggesting that these were, or had been, village communities (if indeed we read come for coma and assume it derives from the Greek kome).

[368] Jones, *The Cities of the Eastern Roman Provinces*, 264.

[369] Jones, 290.

independent, semi-independent or dependent kingdoms in between. For example, the initial urbanisation of Palmyra in the first century was perhaps sparked by the disappearance of imperial control with the disintegration of the Seleucids, and its third-century rise to power again the result of a power vacuum. But on the other hand the permanent destruction of Dura Europos in the third century was very clearly the direct result of the power struggles in this region. And while the proliferation of forts and fortified cities in the Roman East only followed in later centuries, the role of cities as military strongholds and staging points is already quite visible.

In that vein, the presumed role of the Euphrates as a hard border is now considered in quite a different light.[370] But even with the shifts between various configurations of direct and indirect Roman rule beyond the river, it is clear that a number of settlements along the river were provided with garrisons at various points in the period under study – even if that does not match the more intensified military developments under Diocletian. Under the Severans, the installation of garrisons reached as far down the river as Kifrin. And while the Strata Diocletiana (a road from Palmyra to Sura that would be lined with forts under Diocletian) was not fortified in its entirety yet, the area around Sura and Resafa did see the establishment of military posts from the 70s C.E. onwards.[371]

Still, as in the West there is a lot of continuity with previous periods. From Zeugma to Dura Europos, military considerations are quite visible in Seleucid foundations, controlling strategic points on defensible locations, usually with a hilltop citadel. And the subsequent establishment of Roman military posts in cities seems to favour those locations that also received garrisons in the Seleucid period. In comparison to this period however, the impact of the military on civilian settlements appears far greater from the later third and fourth centuries onwards. At that point, villages and small towns were raised to fortified cities, like Amida in Mesopotamia, and Circesium, Zenobia, Callinicum (former Nicephorion) and Neocaesarea (former Athis) on the Euphrates.[372] In a sense, this later Roman phase of military settlement, fortification and the spread of urban status, has a clear resemblance to early Seleucid settlement trajectories in Syria.

Considering the longer-term historical pattern, most of the Hellenistic settlements were founded in the same locations as earlier Bronze Age settlements. Preference for a settlement location should, however, not be mistaken for uninterrupted continuity of a site. While Europos lay on

[370] See for an older view for instance Edward Luttwak, *The Grand Strategy of the Roman Empire: From the First Century A.D. to the Third* (Baltimore [etc.]: Johns Hopkins University Press, 1976).
[371] Whittaker, 'Frontiers', 310; Michaela Konrad, 'Research on the Roman and Early Byzantine Frontier in North Syria', *Journal of Roman Archaeology* 12 (January 1999): 392–410, https://doi.org/10.1017/S1047759400018122.
[372] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 78, 290–95.

the same site as Carchemish, there is a considerable break in occupation after its destruction in the 7th century B.C.E, with several phases of limited occupation before the Hellenistic settlement. In other cases, such Samosata and Damascus, such continuity for at least several centuries is better attested. Additionally, while the Hellenistic settlement policy could be a strong impulse for later Roman urban development, this was not a given. Jebel Khalid (possibly identified as Amphipolis), a typical strategically placed fortified city at a crossing over the Euphrates, was abandoned by 74 B.C.E. and stripped of useful materials.[373]

1.3.2.3 The urban system

The continued use of this Hellenistic blueprint for the urban network of Syria did not mean that the cities remained unchanged after two centuries of being part of the Roman world. Most obviously, whereas the four cities of the Syrian Tetrapolis were probably still relatively similar in many respects in the Hellenistic era, Antioch had become far more politically, economically and demographically dominant over the others. In part, this development can be seen as a result of the geographical limitations. The few population sizes available for Hellenistic era settlements in this region suggest that most of their populations did not come anywhere near the ceiling of agricultural production in their territories (see 3.2.2 for a discussion on production), while by the second century C.E., a number of cities had expanded considerably. Note that this only holds true for this part of the former Seleucid empire: no Roman city in Syria would for instance ever come close to matching Hellenistic Seleucia on the Tigris in size, not even Antioch. In the second century C.E., most of the cities of western Syria Coele and Phoenice had come a lot closer to their maximum agricultural production, making the size and fertility of their respective territories more relevant, and causing stronger differentiation between these cities. Again, the impact of Hellenistic choices on which settlements were elevated to urban status had consequences into the Roman period, as the choice of sites directly relates to the amount of land available around those cities in the long run. Interestingly though, there is basically only a divide in available arable land between the coastal cities and the inland cities, the former having roughly a third to half the land available compared to the latter. And ignoring the primate cities among them, coastal settlement sizes reach a maximum that lies around half the maximum of the non-primate inland cities. Additionally, due to their spacing, the available arable territory for inland cities comes close to everything that can be reached from each city within three hours' walking, while the coastal cities were more? limited by the sea and coastal mountain ranges (which of course do

[373] Nicholas L. Wright, 'The Last Days of a Seleucid City: Jebel Khalid on the Euphrates and Its Temple', in *Seleucid Dissolution: The Sinking of the Anchor*, ed. Kyle Erickson and Gillian Ramsey, Philippika : Marburger Altertumskundliche Abhandlungen, ISSN 1613-5628 50 (Wiesbaden: Harrassowitz, 2011), 117–32.

offer additional valuable resources and foodstuffs not found inland), as well as more numerous other cities competing for space.

On the other hand, while most of the western Syrian towns fit into their geographic niche well enough to consider them self-sufficient units, enough cities break this geographic mould to such a degree that overall, very little correlation can be found indeed between territory size and city size. Antioch of course came to control a vast territory with numerous secondary population centres – such as earlier mentioned Gindaros – spread both throughout the valley and surrounding plateaux, vastly increasing the possibility to redirect surplus food towards the urban centre. In the case of Seleucia Pieria, on the other hand, there was hardly any land available at all. Laodicea was also a large city with a relatively large territory, but this consisted mostly of mountainous areas. Although, as Strabo writes, these could still be put to good use:

> It is a city most beautifully built, has a good harbour, and has territory which, besides its other good crops, abounds in wine. Now this city furnishes most of the wine to the Alexandrians, since the whole of the mountain that lies above the city and is possessed by it is covered with vines almost as far as the summits. And while the summits are at a considerable distance from Laodiceia, sloping up gently and gradually from it, they tower above Apameia, extending up to a perpendicular height.[374]

Only for Apamea was there enough additional land to the north, up to and including secondary centres like El-Bara and Sergilla, in addition to the open plains to the east, to explain its primacy purely from the perspective of agricultural production.

For Seleucia, its role as a major commercial and military port cannot be overstated. It served as the main port of Antioch and it was the base of the Classis Syriaca. To get an idea of the role this city played in the distribution networks of the Roman East, it is enough to look at the spread of ESA tableware. Regardless of whether the production centres of this late Hellenistic and Early Roman tableware were situated around the bay of Issos or in or around the Antiochene, it is clear from the distribution of this ware throughout the entire Levant that Seleucia played a major part as a distribution hub, even if only to reach Antioch and the cities of the northern Levantine interior.[375] And while for the larger part the Orontes was not navigable, access over water was at least possible from Seleucia up to Antioch by way of the canal dug by Verus. Further upstream, towards the border with the Apamean territory, an inscription of a boat maker was found at Darkush (possibly ancient Platanos). By itself this is a clear indication that at

[374] Strab., 16.2.9.
[375] Philip Bes, *Once upon a Time in the East: The Chronological and Geographical Distribution of Terra Sigillata and Red Slip Ware in the Roman East*, Roman and Late Antique Mediterranean Pottery 6 (Oxford: Archaeopress Publishing Ltd, 2015), 12–16.

this point the river was navigable.[376] In the direction of Emesa, canal-like features detected in the Ghab Valley suggest that "the marsh was drained and the river made navigable at that time."[377] Either way, the road alongside the river will still have been the main artery from the sea to access the northern cities along the Orontes, and with it, Seleucia was the main point of access.

Similarly, besides reaping the benefits of its vast territory, for Antioch itself the city's influence throughout the region can be read through its coinage. While many local mints existed throughout the Levant (for lower value coins), provincial and imperial coinage, both bronze and silver, was struck in Antioch. Considered the most prolific imperial mint, we find coins struck in Antioch throughout the entire Levant. For sites in the northern Levant, Antiochene coins, even including civic coins, make up just over a quarter of coins found on average in this period. In the first century C.E., as well as the third to fifth centuries, this rises to well over half the coins found.[378] To the east, an increase in the spread of Antiochene coins follows Roman military expansion, as discussed in the following chapter. And while in the southern Levant the spread of Antiochene coinage only picks up at the end of the second century, the few Antiochene coins found at almost all sites are still indicative of military, commercial and administrative links with the metropolis. As Neumann states: "Indeed, the fact that they appear at all testifies to their importance in the north and provides growing support as to their use by the Roman bureaucracy."[379] On the other hand, Neumann points out that at least based on coinage, Antioch should not be seen as the political capital of Syria. Other cities retained a high degree of autonomy, and competed for it, including striking their own coins. Even the city of Antioch itself seems to have embraced its own municipal identity distinct from the imperial authorities, though these were generally based *in* Antioch. In a way, this speaks against a fully integrated network. Only by the fourth century does this appear to have shifted into a reality where the city becomes, as a capital, the actual top of an integrated urban system.[380]

Locally, we see some degree of multi-tier hierarchical systems: Antioch, most obviously, with centres like Daphne, Gindaros and Meleagrum falling within its territory, which would probably in other parts of the province have been independent settlements. For Apamea, Strabo describes how for instance neighbouring Larissa (among a number of other, unlocated places) had been a

[376] Butcher, *Roman Syria and the Near East*, 133.
[377] Casana, 'From Alalakh to Antioch', 299.
[378] Jack A. Nurpetlian, 'Coinage in Late Hellenistic and Roman Syria : The Orontes Valley (1st Century BC-3rd Century AD)' (Ph.D., University of Warwick, 2013), http://webcat.warwick.ac.uk/record=b2685696~S1; Kristina M. Neumann, 'Mapping the Transformation of Roman Antioch: The Coin Evidence' (ProQuest Dissertations Publishing, 2015), 230, 298, http://search.proquest.com/docview/1739017585/?pq-origsite=primo.
[379] Neumann, 'Mapping the Transformation of Roman Antioch', 321.
[380] Neumann, 388–400.

dependency of the city in the Hellenistic period, although this settlement had obtained independence by the Roman period.[381] Some of the larger towns in and along the Limestone Massif clearly did remain subordinate settlements. Among the coastal cities, where for instance Marathos and Antarados had been dependencies of Arados, by the Roman period most of these settlements appear to be independent administrative units. There is no evidence, however, that these cities played any sort of role in a hierarchical system that extended beyond their own territories.

If anything, with the disintegration of the Seleucid kingdom, a trend away from an integrated network seems to have set in, which continued for at least one and a half centuries under Roman rule. Only the four largest centres retained (most of) their regional influence, increasing their already existing competitive advantage. That two of these cities were port cities furthermore matches the expectation that port cities would play an important role in the Roman period. With that, they would remain the focus of everything that could make a city grow beyond its constraints in an agricultural society: local and imperial elite inhabitants with their spending, cultural and religious prominence, military power, economic advantages, and non-agricultural labour opportunities.

The interior and frontier zones of Roman Syria share a number of historical and geographic patterns that are different from the coastal and Orontes zones. That does not quite make this group of cities a single unit. Within the Severan province of Coele Syria it would not be surprising if the cities of the former Commagene kingdom functioned as an integrated system on both an economic and a political level, even with Germanikeia lying in another province. But it is quite another issue to expect the same of, for instance, Palmyra. Rather, like the cities on the coast and the Orontes, we find a number of distinct units drawn along the lines of older principalities or urban territories, with only superficial layers of integration.

For instance, judging by the military records found there, the earlier examples of Dura Europos and the town of Appadana show that on a military level these settlements were connected, both garrisoning troops of the same unit, while clearly a number of administrative functions were performed at Dura. However, there was local jurisdiction at Appadana, and for appeals, the villagers went straight to the governor at Antioch. The same was the case for appeals from villagers northeast of Palmyra at Dumayr, as described by Millar.[382] So while on a military level we see a regionally integrated, multi-tier system, this does not parallel the urban system, which was formed of mutually independent units.

[381] Strab., 16.2.10.
[382] Millar, *The Roman Near East*, 317–18.

Palmyra on the other hand gives us the best example of commercial connectivity, as will be discussed in detail in section 3.2.4.1. There are good indications that despite its disadvantageous location from an agricultural perspective, local food production played a larger role in the city than generally assumed, through dryland farming and cultivating the nearby mountains. But there can be no doubt that it was commercial activity that formed the foundation of elite wealth, and quite probably this is what elevated it from a backwater oasis settlement to a powerful Roman client state – explaining the presence of a city with a size similar to large regional centres in more fertile parts of the Levant.

Here we see a level of economic integration we can for instance expect in major port cities. But part of Palmyra's economic connections was clearly with settlements well outside of its zone of political influence: down along the Euphrates into the Parthian empire. And even with gradually increasing Roman rule in the city, there is nothing to suggest any political interdependence with its surrounding cities, other than perhaps Antioch and Rome itself. The municipal tax laws for instance show that Roman officials were involved in local matters, but at the same time show that this taxation was a locally, not provincially determined affair.

Damascus can also be seen in the light of its location: in a way it lies at the crossroads between several different systems: with access to Palmyra to the northeast, Emesa and the Orontes cities north along the anti-Lebanon, Heliopolis and the Beqaa valley through the pass along Abila Lysaniou, and by that route also to Berytus and the northern coast. Towards the southeast, by way of Caesarea Paneas it had access to Tyrus, the southern coast and Syria Palaestina. And due south, it could be seen as the northern limit of the Decapolis. It is not hard to see that this centrality would in later centuries see its rise to become the capital of the Umayyad caliphate. In the Roman era however, despite its crossroads location, it seems to have remained a regular regional centre – perhaps rather than connecting all those systems, it was merely peripheral to them.

As stated above, the prominence of the larger cities of Commagene and Mesopotamia, such as Samosata, Edessa and Hatra, should be seen in light of their role as capitals of their respective (former) kingdoms – central points with vast territories, little urban competition and controlling the few available routes for trade (and troop movement). Whether still independent, vassals of or integrated into the Roman or Persian empires, their role as focal points in this region remained unchanged.

As also mentioned above, in the later third and fourth centuries we find a number of villages being enlarged, fortified and elevated to urban status, like Zenobia and Callinicum. Without their later period prominence, we would possibly not have been aware of the existence in earlier

periods when these were still small settlements. Apart from these larger villages, another handful of villages and towns is known through surveys and the Dura Papyri. But it remains an open question how the rural settlement landscape developed, and how many more of these small settlements could have dotted the landscape between the cities described above. The few windows offered for instance by the Land of Carchemish Project (along the Sajur, Amarna and middle Euphrates rivers) and the surveys in the Balikh and Khabur valleys, give contrasting pictures. Around Europos we see a dispersal and intensification of settlements away from tell sites, comparable to what happened in the Antiochene. This also includes expansion of settlement into previously less densely or entirely unsettled regions. As settlement took an additional upswing from the late second to early third centuries, the total settled area more than doubled. The authors explain this as the result of increased security in the region as the frontier was pushed further east.[383] This differs considerably from the waning villages along the Khabur and Balikh rivers – a clear indication that there are always more factors in play in settlement pattern development than agricultural feasibility alone. The urban and non-urban worlds, furthermore, did not necessarily follow the same path.

[383] Newson, 'The Carchemish Region between the Hellenistic and Early Islamic Periods', 193-194,199.

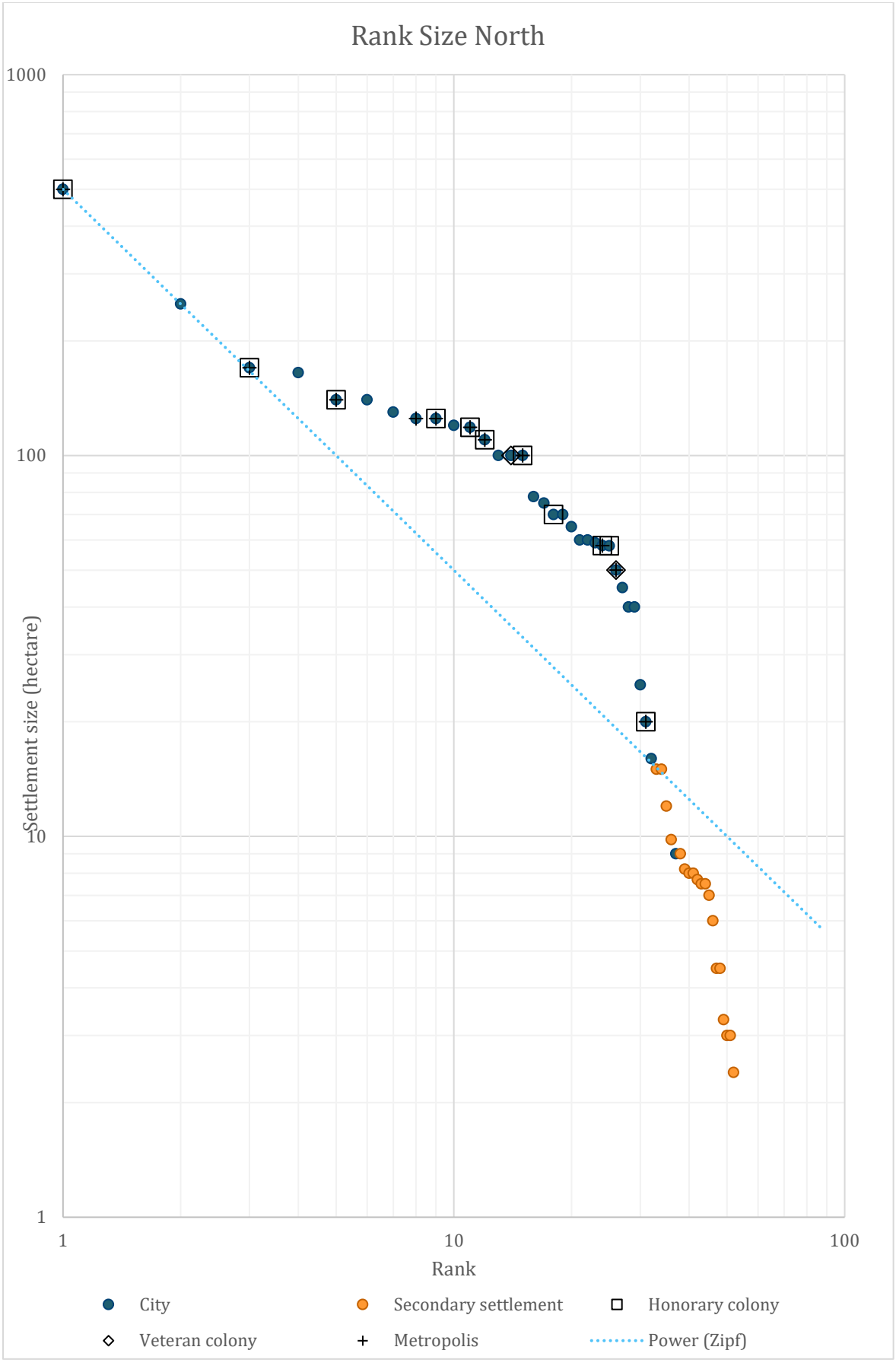


Figure 19 Rank-Size graph northern provinces

1.3.3 Settlement-size distribution

Figure 19 shows the rank-size distribution for the cities of the provinces of Syria Phoenice, Syria Coele and Mesopotamia combined. It shows both those settlements identified in the sections above as self-governing communities, as well as settlements lacking urban status but likely still performing some of the functions of a central place. As discussed in the introduction, because such settlements have only been identified to a limited degree within the Levant, the latter are mostly limited to the Antiochene and those parts of the Decapolis falling within Syria Coele, more on which will be provided in chapter 2.3 below.

Some initial remarks can be made just on the basis of this rank-size plot. In the first place, we see a clearly concave distribution with a high representation among the 40 to 100 hectare size range. The upper tail of the distribution is relatively flat, and consists of the cities of the Tetrapolis and some of the larger regional centres of the three provinces. Note that the very large centre of Hatra is kept out of this distribution, as it should be considered a Parthian rather than a Roman city. In addition, as we use the Severan provincial borders, we also find a city like Caesarea Paneas in this set, which will be discussed in the next chapter both as a Hasmonean foundation and a Decapolitan city.

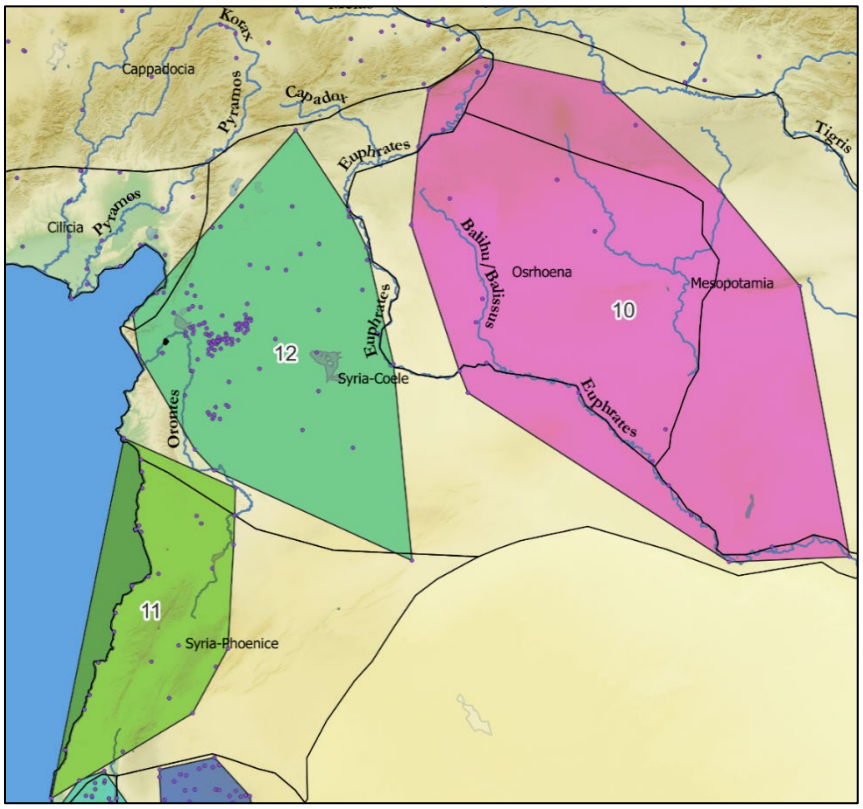
When taking status into account, the distribution furthermore gives insight into the urban hierarchy of the region. There is a clear divide with self-governing cities encompassing the upper size-range of the distribution (everything above 15 hectares) and secondary agglomerations the lower range, the exception being the city of Kifrin at 9 hectares. Cities with colonial status, both honorary and veteran colonies, are found throughout the whole range of self-governing cities from Singara at 20 hectares upwards. Those cities bearing the title of *metropolis* mostly had colonial status as well, and are therefore also found throughout the entire range of cities. While it was to be expected, it is also worthwhile to point out the absence of the type of large 'secondary' agglomerations as can be found for instance in Gaul that could be considered as cities in most aspects but name.[384] In that sense, the rank-size graph does a good job in describing the hierarchy of the settlements studied, with a small upper tail of large regional centres, the bulge of middling sized self-governing cities, and a lower tail of secondary agglomerations.

Clearly, the distribution displayed in Figure 19 strongly departs from Zipf's law, a log linear distribution with a (close to) -1 coefficient often seen in modern period settlement distributions. From the vast literature dealing with the subject, it appears that Zipf's law (and deviations from

[384] Pellegrino, 'The Urbanization of the North-Western Provinces of the Roman Empire', 102–6, 179, 230.

it) remains open to quite different interpretations.[385] Put more strikingly by Paul Krugman, that "the rank-size rule is a major embarrassment for economic theory: one of the strongest statistical relationships we know, lacking any clear basis in theory"[386] Adherence to Zipf's law might indicate a high level of economic integration, or a society's level of industrialisation, or the effect of random growth, or the result of perfect mobility, etc.[387] A settlement distribution departing from that might then be caused by the inverse of any of those explanations (or, in the case of industrialisation, also by evolving into a post-industrial society), but just as often additional factors are suggested such as the under- or overinclusion of settlements (due to incomplete datasets as in for instance archaeology especially the smallest settlements are harder to detect, and therefore underrepresented, or because of inappropriate delimitation of study areas, either being too small or too large).[388]

[385] Glenn R. Carroll, 'National City-Size Distributions: What Do We Know after 67 Years of Research?', *Progress in Human Geography* 6, no. 1 (1 March 1982): 198, https://doi.org/10.1177/030913258200600101; Jeff Luckstead and Stephen Devadoss, 'Do the World's Largest Cities Follow Zipf's and Gibrat's Laws?', *Economics Letters* 125, no. 2 (November 2014): 182–86, https://doi.org/10.1016/j.econlet.2014.09.005.
[386] Paul R. Krugman, *Development, Geography, and Economic Theory* (MIT Press, 1997), 44.
[387] George Kingsley. Zipf, *Human Behavior and the Principle of Least Effort : An Introd. to Human Ecology* (Cambridge, Mass. : Addison-Wesley Pr., 1949); Fujita, Krugman, and Mori, 'On the Evolution of Hierarchical Urban Systems'; Jan Eeckhout, 'Gibrat's Law for (All) Cities', *The American Economic Review* 94, no. 5 (2004): 1429–51; Stephen H. Savage, 'Assessing Departures from Log-Normality in the Rank-Size Rule', *Journal of Archaeological Science* 24, no. 3 (March 1997): 233–44, https://doi.org/10.1006/jasc.1996.0106; Lena Sanders, 'Regards scientifiques croisés sur la hiérarchie des systèmes de peuplement: De l'empirie aux systèmes complexes', *Hiérarchies et croissances urbaines: Nouveaux regards sur les lois de Zipf et de Gibrat pour les villes*, 2013, 127.
[388] Alessio Palmisano, 'Confronting Scales of Settlement Hierarchy in State-Level Societies: Upper Mesopotamia and Central Anatolia in the Middle Bronze Age', *Journal of Archaeological Science: Reports* 14 (1 August 2017): 220–40, https://doi.org/10.1016/j.jasrep.2017.05.029.



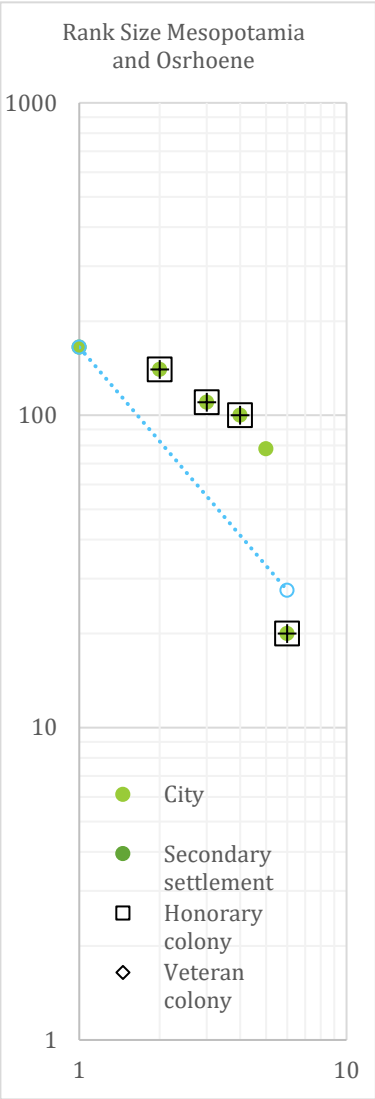
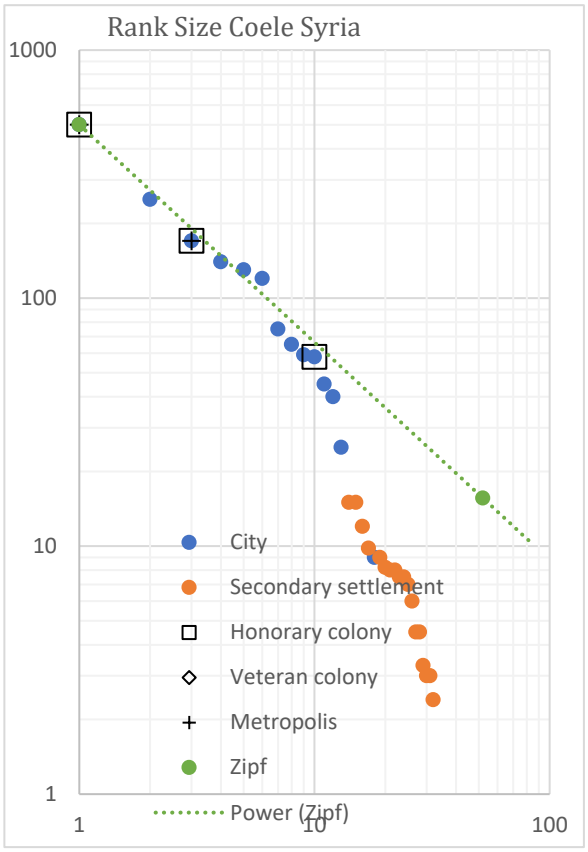


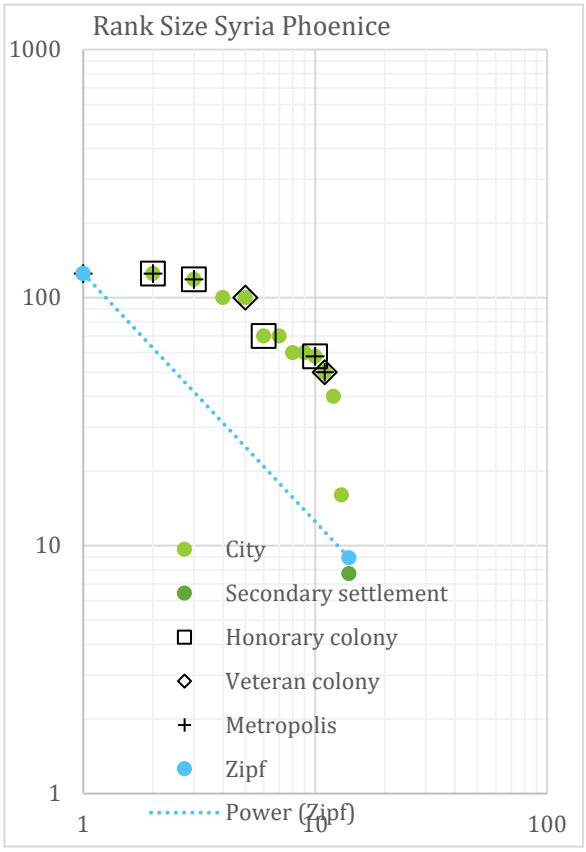
Figure 20 Proximity clusters in the northern provinces

For Roman Syria it is most certainly the case that the lower tail of the distribution is underpopulated. As indicated in the introduction, this is further complicated by the issue that modern application of Rank-Size analysis is based on population figures, while we have to make do with the physical extent of a settlement as a proxy for population size. Furthermore, logically, there is certainly a case to be made for system pooling, as we have combined the cities of several provinces. We get interesting results if we follow the example of Palmisano, and generate proximity clusters for the study area. Taking the best fit number of clusters using an elbow plot, we arrive at three clusters. In Figure 20, we can see that clusters 11 and 12 almost perfectly fit Syria Coele and Phoenice. Cluster 10 covers the settlements of Osrhoena and Mesopotamia. As such, in the following three rank-size plots we have split the region back down to its underlying provinces.[389] In the first place, it is obvious that Mesopotamia and Osrhoene, even if taken together, have too few settlements with known sizes to allow for any meaningful insight into

[389] See chapter 3.2.2.3 for the (only slightly different) distributions based on the proximity clusters rather than the provincial boundaries.

their distribution. Syria Phoenice remains strongly concave, and at this level we cannot interpret this as system pooling anymore. Perhaps it is a reflection of a lower level of integration due to





the high mountain ranges or the geographic distribution of arable land. However, Coele Syria shows a near-perfect fit to Zipf's law for its upper tail. If indeed adherence to this distribution says anything about economic integration, it would be here that we see it in practice. In Chapter 3 and Chapter 4 we will take a more detailed look in order to test this idea.

Chapter 2 Settlements in the Southern Levant

2.1 Introduction

It is well known that in the Levant, urbanism was not a phenomenon introduced by the Romans, but goes back as far as the Neolithic PPN era, even if not of the same order of magnitude as that seen in Egypt and Mesopotamia. Places such as Jericho, Gaza and Damascus boast a settlement history spanning several millennia. Even so, for the southern Levant as well as the north, by the Roman period the majority of Bronze and Iron Age urban centres had lost their importance, with places like Gezer, Lachish and Shiloh all but deserted, while a new urban system had been introduced, to a large degree initiated in the Hellenistic period.[390] Still, in the south, significantly more Roman cities were found on the sites of cities predating the Hellenistic period, even if not continuously inhabited. Consider for example places with great antiquity like Jerusalem, Gaza, Damascus and Pella in the Decapolis.[391] Bostra appears to have been a MBII fortified settlement, and there are indications that the tell at Suweida had been fortified in the Bronze or Iron Age.[392] Clearly new foundations in the Hellenistic and Roman periods could often be found at older sites, with Scythopolis at the site of Beth She'an, Neapolis close to Shechem, and the garrison of Legio VI Ferrata near the ruins of Megiddo.[393] At the onset of Roman expansion in the Near East, the settlements of the Levant looked very different from the Egyptian, Babylonian and Assyrian times, but their legacy certainly lived on in the urban system of the southern Levant.

As the previous chapter did for the northern Levantine provinces, this chapter will describe the main characteristics of the urban system of the southern Roman Levant. As such, an overview will be presented of the location of its cities and settlements performing urban roles within the context of local geographic features. Secondly, the physical aspects of the cities in this region will be discussed, specifically focusing on settlement size and public buildings, in order to further evaluate this in the following chapter.

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[390] Yosef Garfinkel et al., 'The Canaanite and Judean Cities of Lachish, Israel: Preliminary Report of the Fourth Expedition, 2013–2017', *American Journal of Archaeology* 125, no. 3 (July 2021): 419–59, https://doi.org/10.3764/aja.125.3.0419; Grainger, *The Cities of Seleukid Syria*, 7–30.
[391] Will, 'Damas Antique', 3.
[392] Maurice Sartre, *Bostra. Des Origines à l'Islam.* (Paris: Librairie orientaliste Paul Geuthner, 1985), 44–50; Dentzer et al., 'Formation et développement des villes en Syrie du Sud de l'époque hellénistique à l'époque byzantine : les exemples de Bosra, Suweida, Shahba'.
[393] Yoram Tsafrir and Gideon Foerster, 'Urbanism at Scythopolis-Bet Shean in the Fourth to Seventh Centuries', *Dumbarton Oaks Papers* 51 (1 January 1997): 88, https://doi.org/10.2307/1291763; Yotam Tepper, 'The Roman Legionary Camp at Legio, Israel: Results of an Archaeological Survey and Observations on the Roman Military Presence at the Site', in *The Late Roman Army in the Near East from Diocletian to the Arab Conquest*, ed. Ariel Lewin et al., vol. 1717, BAR International Series (Oxford: Archaeopress, 2007), 57.

From an organisational point of view, from the annexation of the Nabatean kingdom by Rome in 106 C.E., the southern Levant was divided into two provinces, the Provinciae Arabia and Judea, the latter known as Syria Palaestina after the Bar Kokhba revolt. Their borders, as far as known, were subject to change throughout the Roman period, with at least the northern Arabian frontier, which at first ran just north of Adraha, shifting further north under the Severi to include the region up to Shaqqa at first, and in the third century beyond the north end of the Trachonitis.[394] In this chapter, however, the region will be discussed in three parts: the Hauran and its direct surroundings, covering most of the north of the Provincia Arabia, but also including the Decapolitan cities of Scythopolis and Pella, which administratively fell under the province of Syria Palaestina; the southern part of the Arabian province including the settlements in the Negev; and the Judean province. This allows for a better understanding of the historical and environmental context of the cities, beyond Roman administrative decisions.

[394] Steven Menno Moors, 'De Decapolis: steden en dorpen in de Romeinse provincies Syria en Arabia' (Ph.D., 's-Gravenhage, Leiden University, 1992).

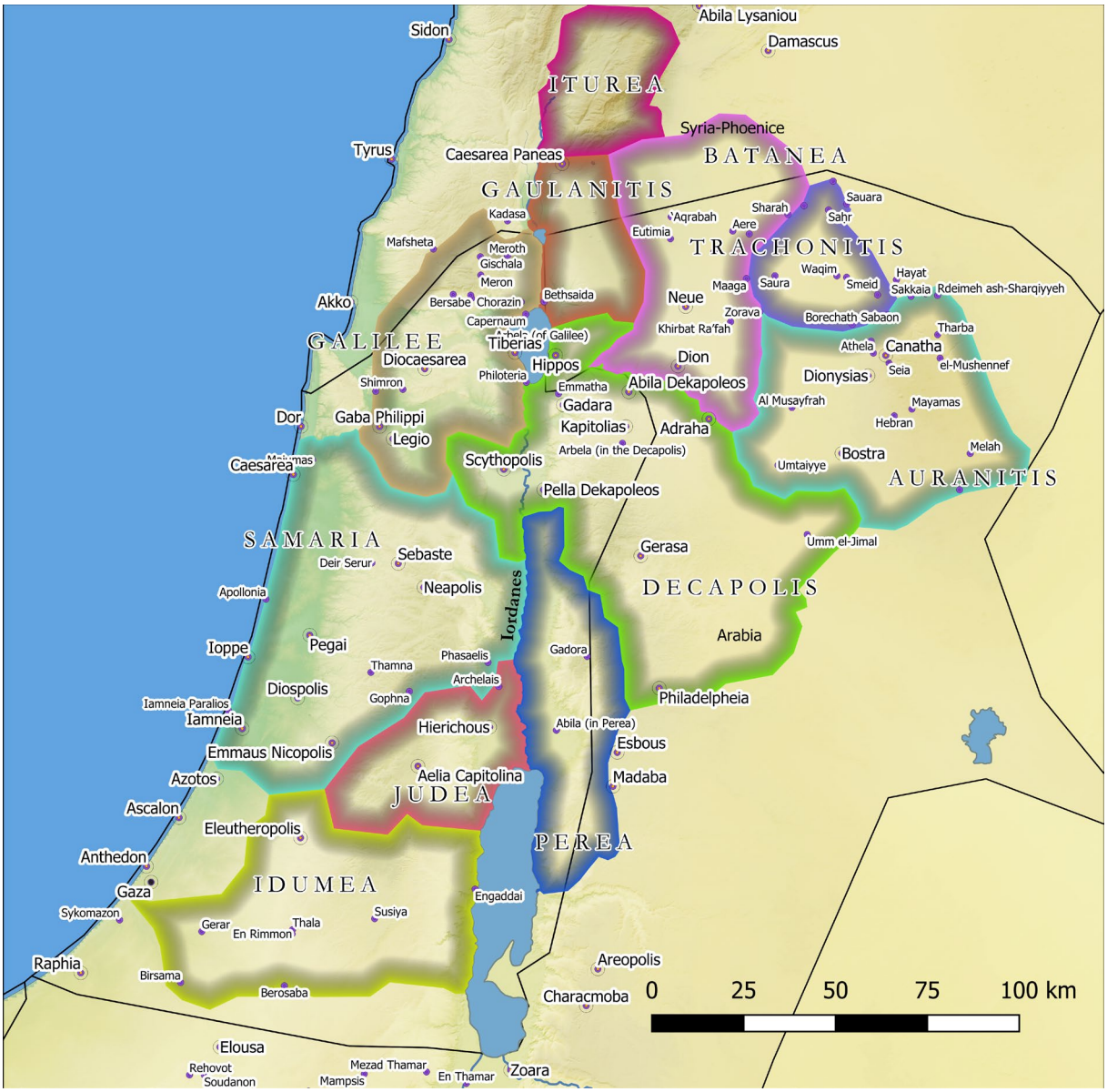

Figure 21 Typical representation of the regions in Syria Palaestina and northern Arabia

2.2 Syria Palaestina

2.2.1 Geography and regional organisation

Climatically, the region of Syria Palaestina offers great variation. Rainfall is generally sufficient for dry farming purposes, with a Mediterranean climate from the central mountain range to the west, with the highest rainfall in Galilee in the north declining southwards to the Negev desert, where, as the name already implies, there is a steep drop in precipitation. East of the central mountain range, in the Jordan Valley, rainfall is still abundant in the north around Scythopolis, but rapidly declines to levels below the minimum required for dry farming when reaching the shores of the Dead Sea. Nonetheless, the valley still receives enough freshwater for agricultural purposes from the river, springs and downflow from the mountains during the wet season, when making use of catchment and irrigation techniques.

Contemporary geographers and writers, including Ptolemy, Pliny and Josephus, generally described the region encompassed by the province of Syria Palaestina from north to south with the names Galilee, Samaria, Judaea and Idumaea, using the name Peraea for the area across the Jordan and the Dead Sea, south of Pella. The borders between Galilee, Samaria and Judaea are not particularly clear. Galilee consists of the Western Galilee, part of the coastal plain, and Upper and Lower Galilee (part of the central highland region). Mostly between 500 and 700 m altitude, it has high annual rainfall and is considered very fertile. Samaria is made up of the Samarian hills to the south of Galilee. Judaea consists of the following highland region to the south up to and including Mount Hebron, but for some authors also includes the Judean desert east from the mountains to the Dead Sea, the Shephelah or Judean foothills and the coastal plain to the west.

The Hasmoneans and Herodians organized their lands as a series of toparchies, the basic administrative unit below that of tetrarchy or ethnarchy, which essentially were the various Herodian kingdoms (for instance, Archelaus was ethnarch of Judea, while Philip ruled a tetrarchy in the north, and Herod Antipas was tetrarch over Galilee and Perea). As Jones writes, this form of organisation was inherited from the Ptolemies, and had, after a century of Ptolemaic rule, been taken over by the Seleucids and the Hasmoneans.[395] Contrary to both the preferred Roman and Seleucid mode of organisation based on city territories, in the Hasmonean and Herodian system the regional capitals, perhaps better described as administrative centres, were not necessarily urban. It seems likely that the level of autonomy of a toparchy from the central government will have been more limited than that of a city.[396] Some administrative centres of

[395] Jones, *The Cities of the Eastern Roman Provinces*, 274.
[396] See in comparison for Egypt also L. de Ligt, 'The Urban System of Roman Egypt in the Early Third Century AD: An Economic-Geographical Approach to City-Size Distribution in a Roman Province' 47 (2017): 260–61, where toparchies also existed as tax-related territorial units, for which some central

toparchies were explicitly promoted to urban status, such as Lydda, Emmaus and Iamnia (although Josephus' description of the latter, as Benjamin Isaac suggests, may indicate that it was organised as a city ruling over its own territory already). Places like En Gedi and Jericho remained small settlements throughout the period, as did the toparchy centres in Perea. By all appearances, the Romans had in many instances taken over the existing system, turning toparchy centres at least nominally into cities, while in others they merged the old toparchies into other city territories; for instance, the toparchy of Tarichea seems to have become part of the territories of Tiberias and Diocaesarea.[397]

While in earlier times Jerusalem had been the capital of the region, the Roman governor generally resided in Caesarea Maritima. However, unlike Bostra, the capital of the Provincia Arabia, Caesarea was not the centre of military control. Instead, the legionary headquarters of the Legio X Fretensis were located at Aelia Capitolina (Jerusalem) since the revolts, and Legio VI Ferrata was stationed at Legio. Note how the name of Legio survived into the present in the name of the Palestinian village of Lajjun. A similar occurrence we find in Jordan, where a settlement on the site of a Late Roman legionary fortress is also still known as El-Lejjun.

Haensch speculates that the choice for Caesarea as a capital might have been based primarily on ease of communication through its harbour. After 135 the newly founded Aelia Capitolina on the ruins of Jerusalem might have made a reasonable alternative, but Caesarea may not just have been maintained because of its accessibility, but perhaps also as a reward for its loyalty to Rome during the revolts.[398] There is no clear evidence whether the governor held assizes outside of Caesarea. It appears from Josephus that before the revolt the governor did visit Jerusalem for Pesach, but it's not stated that he also presided over lawsuits. On the other hand, there is ample evidence of people travelling to or being brought to Caesarea in order to see the governor, both for legal as well as administrative business. The financial procurator appears to have been located in Caesarea as well.[399] There is thus no doubt that Caesarea was the political and

places also showed (limited) urban-like characteristics. But these were nonetheless secondary to higher order administrative units called nomes, with their own central places known as metropoleis.

[397] Uzi Leibner, *Settlement and History in Hellenistic, Roman, and Byzantine Galilee : An Archaeological Survey of the Eastern Galilee*, 1st ed. (Tübingen: Mohr Siebeck, 2009), 225; Benjamin Isaac, *The Near East under Roman Rule : Selected Papers*, Mnemosyne. Supplementum ; 177. 820947849 (Leiden: Brill, 1998)166; Jones, *The Cities of the Eastern Roman Provinces*, 275; But contra Martin Goodman and Oxford Centre for Postgraduate Hebrew Studies, *State and Society in Roman Galilee, A.D. 132-212* (Totowa, NJ: Rowman & Allanheld, 1983), 135.

[398] Haensch, *Capita provinciarum*, 232–34.

[399] Haensch, 227–29, 234–35, 238.

juridical centre of Roman Judea.

Figure 22 Syria Palaestina

2.2.2 Settlements and distribution

As discussed in the general introduction, cities and towns are here defined on the basis of juridical and administrative, functional and quantitative criteria. Essentially we ask whether a given place was officially called a city, looked like a city, functioned like a city and/or had enough

people living there to be considered a city. As stated, there is little explicit evidence for the juridical status of cities in the East. Identifying the official cities of Syria Palaestina therefore requires weighing up a number of potential indicators for urban status, such as the presence of urban officials, older privileges, coinage and settlement status in later periods. In the following section we will also look at the built environment. In the final section, in those regions where we are unable to identify cities per se, we also look at those settlements nonetheless performing central functions.

To begin with, there are those cities that were granted colonial status, the only clear official title used in an urban context in the Near East. In Syria Palaestina this gives us Caesarea Maritima, receiving its status under Vespasian, Aelia Capitolina, granted by Hadrian, and Sebaste, by Septimius Severus. Later in the third century Neapolis and possibly Gaza and Ashkelon would be added to this list.

New foundations are a clear indicator of urban status as well. Vespasian refounded Ioppe, as it had been destroyed (twice) by Roman troops, and in 71-2 C.E. founded Neapolis.[400] Apparently only under Severus was Eleutheropolis founded at Beth Govrin; it was granted the toparchies of En Gedi and Bethletepha as well as its own territory. Diospolis was founded at Lydda, and also gained the toparchy of Thamna.

A further indicator is the right to strike coins throughout the Principate. That gives the following cities: Ptolemais, Dora, Caesarea, Ashkelon, Gaza, Raphia, Gaba Philippi, Sepphoris/Diocaesarea, Sebaste, Tiberias and Neapolis. For some, coinage does not start until the end of the second century or under the Severans, such as Ioppe from Caracalla to Severus Alexander, Eleutheropolis and Diospolis from Septimius Severus and Anthedon under Severus Alexander. For Nicopolis and Antipatris coinage is only known from Elegabalus.[401]

Finally, the appearance of a city on the lists of bishoprics from later centuries usually indicates that they held city status. These confirm the places named above, and show that Apollonia, Iamnia, Ashdod Yam, and perhaps the port of Ascalon had also gained in importance by the 6th century, as did Helenopolis founded by Constantine and the city of Ono near Diospolis from the reign of Diocletian onwards.[402]

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[400] Jones, *The Cities of the Eastern Roman Provinces*, 275–78.
[401] Jones, 280–81, 462 note 72; Avner Ecker, 'The Coinage of Jaffa in the Roman Period', *Israel Numismatic Journal* 17 (2010): 151–76; 'RPC', VI 8980-8990, 8999-9006.
[402] Jones, *The Cities of the Eastern Roman Provinces*, 281–82; Yoram Tsafrir, *Tabula Imperii Romani : Iudaea-Palaestina : Eretz Israel in the Hellenistic, Roman and Byzantine Periods : Maps and Gazetteer* (Jerusalem: Israel Academy of Sciences and Humanities, 1994), 142.

Beyond these more straightforward cities, it becomes clear that urban status should rather be considered a spectrum. For instance, to what degree should a place like Ioppe be considered urban? It was a rather small settlement, with only late and limited issues of coins. But, as such, it should then be considered a self-governing settlement within the urban system of the time. Conversely, Magdala on the lake of Tiberias does not seem to have been recognised as a city only judging by the indicators above, but its archaeological record suggests it was at the very least as urban as Ioppe, even if it was a rather small settlement as well. [403] Again, we must consider it to have qualified as another central node within the regional urban system, perhaps only as a 'functional' town.

Within Palaestina, we have only two other settlements, Iamnia and Azotos, whose place on the urban spectrum remains somewhat unclear. That is, at least before they appeared in the bishops lists. Both Iamnia and Azotos had already received their freedom under Pompey and had been refounded by Gabinius, but it has been suggested that since then they lost their status of self-governing cities and became administrative centres of imperial estates. Nonetheless, Iamnia appears to have done well throughout, whatever its official status. Moshe Dothan shows that after the first revolt all that was left of Azotos was a small village. This remained so into the Byzantine era; in the words of Eusebius: "a minor townlet of a certain importance".[404] And the port of Azotos, independent of Azotos itself, which would become a city in the Byzantine period, does not seem to have had extensive Roman habitation.[405] There are no major cities from any other point of view, be it demographic or economic, that did not strike any coins (like Apamea in the north) or that show no other sign of having received urban status. Neapolis lost its city rights when it chose to side with Pescennius Niger against Septimius Severus, but that was a temporary situation, and it did not make the place any more a village than it did Antioch in similar circumstances.

Somewhat surprisingly, size estimates are available for all of the 25 cities in the region – including those settlements that only gained urban status later, but already performed a central role (see Table 3 below. In italics are those places treated later when discussing the Decapolis). However, for only ten do we have a reasonable idea of the public buildings that existed in the cities in the Roman period, and for five only a single or a few elements are known. In most cases,

[403] Stefano De Luca and Anna Lena, 'The Harbor of the City of Magdala/Taricheae on the Shores of the Sea of Galilee, from the Hellenistic to the Byzantine Times. New Discoveries and Preliminary Results', in *Häfen Und Hafenstädte Im Östlichen Mittelmeerraum von Der Antike Bis in Byzantinische Zeit: Neue Entdeckungen Und Aktuelle Forschungsansätze ; Istanbul, 30.05.-01.06.2011. 1 1*, ed. Sabine Ladstätter, Felix Pirson, and Thomas Schmidts, vol. 1, BYZAS 19 (İstanbul: Ege Yayınları, 2014), 113–64.
[404] Eus., *Onom.*, ed. Steven Notley and Zeev Safrai (Brill, 2005), 18,20:11,22.
[405] Ephraim Stern, Ayelet Lewinson-Gilboa, and Joseph Aviram, *The New Encyclopedia of Archaeological Excavations in the Holy Land* (Jerusalem: The Israel Exploration Society & Carta, The Israel Map and Publishing Company, 1993), 93–102; Jones, *The Cities of the Eastern Roman Provinces*, 259, 274.

this is due to continuous habitation on the same location. For example, Gaza is virtually unknown, except for literary references – mentioning for instance the destruction of its many temples – and the suggestion that city walls from later periods may have followed the layout of their Roman predecessors.[406] But, as is evident for instance from Damascus, such assumptions should be made with caution, because the later walls only appear to coincide with Roman remains at a few points.[407] Even for those cities showing more features, as shown in Table *4*, the state of knowledge is not necessarily very good. Here too, later occupation or land use can pose a major problem. For instance, Emmaus is covered by a highway and even Jerusalem is very poorly known for the Roman period, compared to its many other layers of occupation.

The cities of Roman Palestine appear somewhat evenly distributed, and with an average nearest neighbour distance of 11,5 km between cities, they were also rather close to each other. The longest distance between two neighbouring cities (disregarding other, closer neighbours in other directions) is only 58 kilometres, from Neapolis to either Aelia Capitolina or to Emmaus. A larger concentration of settlements lay around the lake of Galilee, with Tiberias enjoying urban status, and on the Decapolitan side of the lake, Hippos as well. Further south, Samaria and Neapolis lay relatively close to each other, but as indicated, more removed from the other cities around them. On the other hand, in Perea and in the Jordan Valley, in the former toparchies of Jericho, Amathus, Abila and Gadora, no cities came into existence.

[406] Jean-Baptiste Humbert and Yasser Mattar Abu Hassuneh, *Gaza méditerranéenne : histoire et archéologie en Palestine* (Paris: Errance, 2000).
[407] Saad and Benech, 'Nouvelles Données Sur Le Plan Antique de Damas', 6–8.

A claim to urban status did not necessarily make settlements particularly large. The governor's seat, Caesarea Maritima, appears to have grown beyond the 64 hectares of the Herodian walls, but at the end of the second century was, in all probability, still smaller than the 110 hectares of the Byzantine walls.[408] Inland, Neapolis, like Scythopolis in the Decapolis, seems to have been a more sizeable settlement.[409]

Table 3 City sizes Palaestina

	(ha)
Neapolis	100
Scythopolis	*80*
Abila Dekapoleos	*75*
Caesarea	65
Sebaste	64
Diospolis	60
Aelia Capitolina	60
Ascalon	54
Diocaesarea	50
Iamneia	50
Gaza	46
Emmaus Nicopolis	45
Tiberias	37
Eleutheropolis	30
Gadara	*30*
Legio	30
Anthedon	15
Gaba Philippi	14
Azotos	12
Raphia	12
Dor	11
Pella Dekapoleos	*10*
Pegai	10
Ioppe	9
Capitolias	*7*

The other, larger cities, measured between 40 and 65 hectares, not particularly large compared to other regions. More notable is that many cities were smaller than 20 hectares. Some, like Ioppe, Anthedon and Dor on the coast seem to have been considered important settlements, despite their diminutive size.[410] In fact, these data highlight the fact that besides Caesarea and Ascalon, most of the coastal towns in the area were small settlements. Gaza and possibly Iamnia were among the larger settlements, but lay somewhat inland, having dependent harbour settlements, as did the smaller town of Azotos, whose coastal settlement, Ashdod Yam, would outgrow it by the Byzantine period. On the other hand, the group of four larger cities from Aelia Capitolina to the coast (Aelia, Emmaus, Lydda and Iamnia) together made up a quarter of urban hectares in the whole region, discounting the Decapolitan cities. This much already makes clear that, while by location the cities were relatively well distributed, this was clearly not the case in terms of size.

2.2.3 Public buildings and urban profiles

Table *4* shows a selection of public buildings currently known and likely to have been present under the Severi in the cities of Syria Palaestina, both from textual and from archaeological sources. As in the north, most cities appear to have been adorned at least with a temple, theatre, baths and a colonnaded street, and obviously various forms of water infrastructure. However, as

[408] Joseph Patrich, *Studies in the Archaeology and History of Caesarea Maritima: Caput Judaeae, Metropolis Palaestinae*, Ancient Judaism and Early Christianity 77 (Leiden: Brill, 2011), 94.
[409] Yitzhak Magen, *הרומית בתקופה שכם :ניאפוליס פלאביה [Flavia Neapolis: Shechem in the Roman Period]*, Judea and Samaria Publications 5 (Jerusalem: ארכיאולוגיה מטה קצין, ושומרון ביהודה האזרחי המנהל, העתיקות רשות, 2005), 49.
[410] But note that this is quite comparable for instance to Northern Italy, where we find average city sizes below 20 hectares as well. Peter de Graaf, 'Roman Gentrification: From the Sixth Century BC to the Death of Trajan' (Ph.D., Leiden, Leiden University, 2022), 25–41, https://hdl.handle.net/1887/3483641.

has been mentioned before, most of the cities showing few buildings have only a very limited archaeological record, making a general analysis of the data harder. It is nonetheless possible to discuss the few better-known cities in some more detail.

Table 4 Buildings in Syria Palestina (excluding the Decapolis)

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	Status buildings	*Grand Total*
Aelia Capitolina	2	4			1	3	2	*12*
Caesarea	1	3	2	3	1	1		*11*
Sebaste	1	4		2	1	2		*10*
Diocaesarea	4	3	1	1		1		*10*
Tiberias	3	2		3	1	1		*10*
Legio	2	3		2	1			*8*
Dor	2	3		1		1		*7*
Neapolis	1	1		2		1		*5*
Ascalon		3		1	1			*5*
Diospolis	1	3				1		*5*
Emmaus Nicopolis	4			1				*5*
Eleutheropolis	1			1				*2*
Gaza					1	1		*2*
Gaba Philippi	1							*1*
Pegai		1		0				*1*
Grand Total	**23**	**30**	**3**	**17**	**7**	**12**	**2**	***94***

The Roman city of Aelia Capitolina no longer enjoyed the grandeur that the city had known under the Hasmoneans and Herodians. Jerusalem was an old city, in, as Galor and Bloedhorn state, perhaps a surprising location for a city that often acted as the capital of Palestine. It lacked easy access through its hilly surroundings and the city was spread out over several hills between 660 and 770 meters in altitude. Furthermore, it had limited water sources, the Gihon spring being the only perennial spring.[411] While human presence goes back to the Chalcolithic, the first

[411] Katharina Galor and Hanswulf Bloedhorn, *The Archaeology of Jerusalem: From the Origins to the Ottomans* (New Haven: Yale University Press, 2013), 11–15.

traces of buildings date to the Early Bronze Age. Around 1850 B.C.E. it was first fortified with a wall surrounding an area of around 4 hectares in size, and around that time also first appeared in written sources.[412] During the Iron Age, the city greatly expanded, with the construction of the First Temple and expanded fortifications. Although these Early Iron Age constructions – including the Temple – have not been traced, later 8th- to early 7th-century fortifications have been uncovered.[413] After the Babylonian destruction of the city in 586 B.C.E., it was reduced to its Early Iron Age size, but the Temple was rebuilt at the end of the sixth century.

After the plundering of Jerusalem by Antiochus IV and his actions resulting in the Maccabean Revolt, the city started to flourish as the capital of the expanding Hasmonean state, with extended walls, a palace, aqueducts and Jason's gymnasium. Herod's monumentalisation of the city went even further. Besides reconstructing the Hasmonean fortress, renaming it Antonia in honour of Mark Antony, he built another palace, colonnaded streets, a theatre and a circus, but most importantly, he completely reconstructed the Temple and expanded the enclosure on

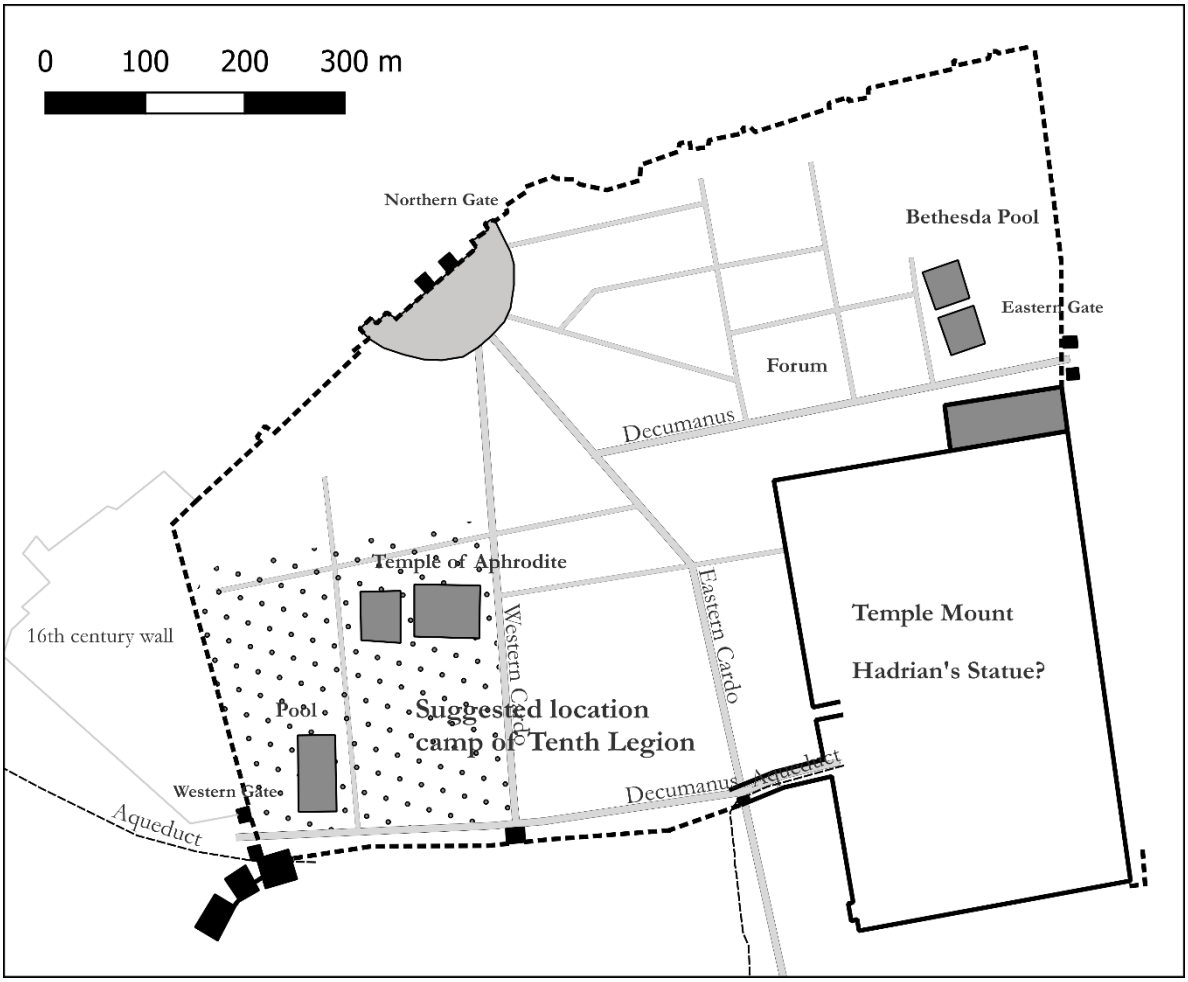

Figure 23 Proposed location of the walls of Aelia Capitolina (after Bar 1998, fig. 1)

412 Galor and Bloedhorn, 18–21.
413 Galor and Bloedhorn, 28–38.

Temple Mount. It is thought that just before the revolt the city covered between 156 and 180 hectares.[414]

Large parts of Jerusalem were ruined in the First Revolt, and the city was reconstructed by Hadrian. While archaeological remains of the previous periods are limited, for the Roman city they are very poor indeed. A triple-arched gateway and an oval plaza, from which the two main streets began, are known, and also the colonnaded streets, another triumphal arch, and aqueducts. Other buildings are only known from literary sources, such as temples for Jupiter and Aphrodite, a forum and a covered market. The very late *Chronicon Paschale* suggests the existence of a theatre, baths and perhaps a nymphaeum (described as a τετράνυμφον).[415] The exact location of the camp of the tenth legion has not been pinpointed either, and various suggestions have been made. It appears that only a part of the legion was actually stationed inside the city, with a larger part on the outskirts, at Givat Ram and Ramat Rachel.[416] The city was only fortified at the end of the third century, presumably when the legion was transferred south to Aila on the gulf of Aqaba, and the second- and third-century city will in any case have been smaller than the 74 hectares encompassed by the city walls currently visible, which may have been more or less the size of the city in the Late Roman period. Doron Bar's suggestion – of which he himself admits is as speculative as any other – puts the size of the later third-century walled area to just under 50 hectares. Of this, 12 hectares were taken up by the Temple Mount precinct, which, apart from the imperial statues, remained abandoned and in ruins, and was only used as a source for building material. It is also unclear whether the temple of Jupiter was built on the location of the Second Temple.[417] As stated above, the city proper remained unwalled until the later third century. Bar's interpretation (Figure 23) however places the legionary base around the Towers Pool and the Temple of Aphrodite. A recent publication by Shlomit Weksler-Bdolah (Figure 24), reflects a more commonly held view that the camp should be sought on the southwestern hill, roughly adding 20 to 25 hectares to Bar's estimate.[418] With that interpretation, the city would consist of just under 40 hectares of unwalled civilian settlement,

[414] Galor and Bloedhorn, 15–17, 63–112; Peter Richardson, *City and Sanctuary: Religion and Architecture in the Roman Near East* (London: SCM Press, 2002), 158–59, 180–82.
[415] Richardson, *City and Sanctuary*; Galor and Bloedhorn, *The Archaeology of Jerusalem*, 113–26; Hannah M. Cotton et al., *Corpus Inscriptionum Judaeae/Palaestinae : A Multi-Lingual Corpus of the Inscriptions from Alexander to Muhammad*, vol. 1 (Berlin: de Gruyter, 2010), 20–22; *Chron. Paschale*, ed. L. Dindorf, Corpus Scriptorum Historiae Byzantinae 11–12 (Bonn, 1832), 1,474.
[416] Galor and Bloedhorn, *The Archaeology of Jerusalem*, 115–16.
[417] Cotton et al., *Corpus Inscriptionum Judaeae/Palaestinae*, 1:19; Doran Bar, 'Aelia Capitolina and the Location of the Camp of the Tenth Legion', *Palestine Exploration Quarterly* 130, no. 1 (1 January 1998): 8–19, https://doi.org/10.1179/peq.1998.130.1.8.
[418] Shlomit Weksler-Bdolah, 'A Plan "Aelia Capitolina" in the 4th c. A.D', in *Roman Jerusalem*, 2017; Shlomit Weksler-Bdolah, 'Aelia Capitolina: The Roman Colony and Its Periphery', accessed 22 July 2020, https://www.academia.edu/41689405/Aelia_Capitolina_The_Roman_Colony_and_Its_Periphery; Shlomit Weksler-Bdolah, *Aelia Capitolina* (Brill, 2019), https://doi.org/10.1163/9789004417076_004.

20 to 25 hectares for the military base and 12 hectares for the ruins of the Temple Mount. We may conclude that the city of Aelia Capitolina was a rather modest city, both in comparison with its former self, and compared to contemporary cities in the Roman East.

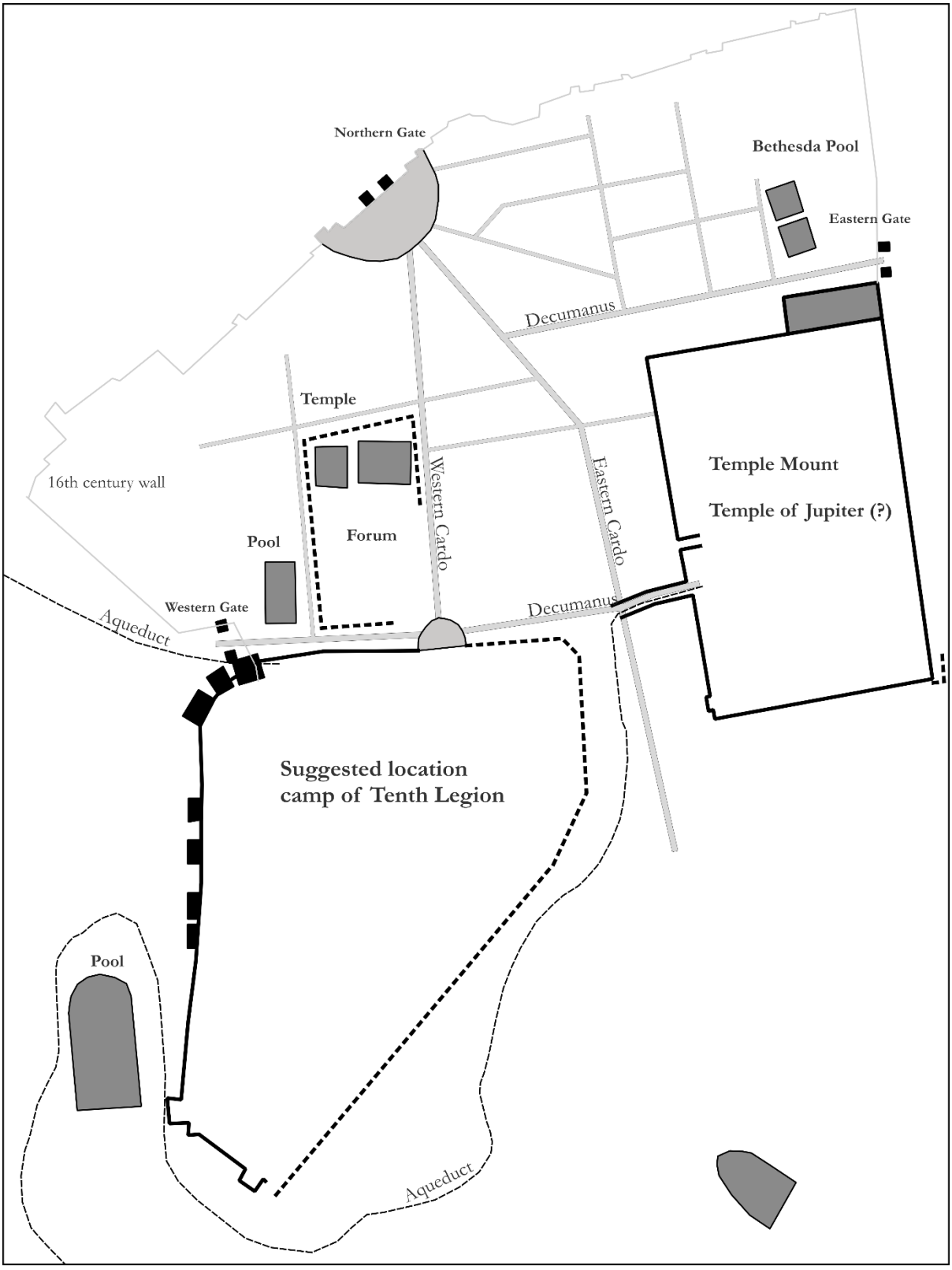

Figure 24 Alternative proposal for the walls and location of the camp (after Weksler-Bdolah 2019, fig. 24)

During the Roman period, no other city in the region would come close to match Jerusalem in size before it was destroyed in the Revolt. The new capital of Caesarea Maritima, receiving all the benefits of imperial attention, with the added boons of ease of access and a well-built harbour – while the southern Levantine coast mostly lacks good natural harbours – still was no equal to Jerusalem. Even so, Herod greatly invested in his new port city, as can be seen in Table *4*. Several of the buildings described by Josephus have been attested archaeologically, such as the first hippodrome and the praetorium built by Herod, which remained in use into the Byzantine era. Similarly, later imperial investment is evident, with the hippodrome built under Hadrian a good example. Interestingly, a colonnaded street has not yet been traced .[419] Furthermore, Caesarea was one of the few cities that seems to have had an amphitheatre, although its identification is not certain.[420] The only other places in Syria Palaestina that had one were Eleutheropolis, Nicopolis – where it may have been built later in the third century – and Neapolis, where certainly only in the second half of the third century was the hippodrome converted into an amphitheatre.[421] Legio may also have had one, even though the identification is somewhat uncertain.[422] At least from a Roman urbanistic point of view, Caesarea likely offered most amenities one would expect in a provincial capital.

Another good example of a new foundation is Tiberias, founded by Herod Antipas, a son of Herod. Josephus indicates in his histories that the city was populated (by force) with people from the surrounding area.[423] The subsequent presence of coinage, a council and an agoranomos fit well with the institutional view on urbanity.[424] At the same time, from the onset the city was laid out in a grid-like plan, with a theatre and a monumental gate. This town, which would remain a flourishing city throughout the Roman period, was created to match contemporary expectations of a city in its physical and institutional aspects.

At Legio, close to ancient Megiddo, only recently were the military headquarters of the Legio VI Ferrata mapped with geophysics, and these are currently being excavated. Evidence for the civilian settlement is however still limited, and mostly relies on observations made at the beginning of the twentieth century by Schumacher, who described buildings such as the remains of colonnaded streets and a theatre or amphitheatre.[425] It appears that, unlike for instance

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[419] Patrich, *Studies in the Archaeology and History of Caesarea Maritima*, 10–11, 42-44. 68-70, 91.
[420] Supposedly built by Herod the Great. See Zeev Weiss, 'Theatres, Hippodromes, Amphitheatres, and Performances', in *The Oxford Handbook of Jewish Daily Life in Roman Palestine*, ed. Catherine Hezser (Oxford University Press, 2010), 0, https://doi.org/10.1093/oxfordhb/9780199216437.013.0034.
[421] Magen, *ניאפוליס פלאביה*, 179–210.
[422] Yotam Tepper, 'Megiddo, Survey', Hadashot Arkheologiyot – Excavations and Surveys in Israel. Volume 125, 28 November 2013, http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=5390&mag_id=120.
[423] Jos., *Ant.*, XVIII.ii.3.
[424] Jos., XVIII.vi.2; Jos., *Bell. Jud.*, II.ix.1; Jones, *The Cities of the Eastern Roman Provinces*, 277.
[425] Gottlieb- Schumacher, *Tell el-Mutesellim : Bericht über die 1903 bis 1905 ... vom Deutschen Verein zur Erforschung Palästinas veranstalteten Ausgrabungen* (Leipzig: Rudolf Haupt, 1908).

Zeugma and Bostra, the legionary camp was not attached to an already existing city. This town is the only example of this phenomenon in the East before the third century. A Jewish village, Kefar 'Othnai, rendered as Caparcotani in Roman sources, was located nearby, and before the end of the third century a settlement had come into existence which received urban status in 305 C.E. under the name of Maximianopolis.[426]

Some general trends can be discerned in the monumental profiles of the cities of Syria Palaestina. As is clear, many places owed at least some of their monumental architecture to Herod. While especially Jerusalem, Caesarea and Samaria seem to have benefited from construction work, theatres are attributed to his reign in Jericho, Masada and Herodium, and baths, a palace and colonnades in Ascalon.[427] Outside of his domains, he appears to have sponsored works in Antioch, Damascus, Acco and Sidon.[428] As stated, his grand fortresses were destroyed during the revolts. His successors were responsible for at least some of the constructions at Tiberias (at least the walls and the theatre) and in what would become part of the Decapolis, in Caesarea Philippi (Paneas).

Zeev Weiss has recently argued that the design of Herod's buildings suggest that he intended these to be fit for multiple purposes. The race tracks at Samaria, Caesarea and Jericho fell somewhere between a Roman circus and a Classical stadium in size, and were wide enough for chariot races. Furthermore, those at Samaria and Jericho were surrounded with colonnades, reminiscent of a palaestra, while the stadium in Jericho also incorporated a theatre.[429]

The theatre built by Herod in Jerusalem is said to have been built of wood, contrary to those in other cities. It has been argued that when describing the theatre of Caesarea, Josephus emphasised that it was made of stone, as a contrast to that of Jerusalem. However, Weiss has argued that Josephus described it as having been cut out of the rock, not built up out of stone, and that it was mainly building techniques he was speaking of, rather than suggesting that the material was noteworthy. Also, the description by Josephus that the ornaments removed from the theatre of Jerusalem revealed the wood underneath, may indicate that these were wooden trophies covered with war spoils, rather than statues standing on the wooden floor of a (wooden) theatre. Archaeologically, a theatre dated to the Roman period has not yet been found

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[426] Yotam Tepper, 'Lajjun-Legio in Israel: Results of a Survey in and around the Military Camp Area', in *Limes XVIII: Proceedings of the XVIIIth International Congress of Roman Frontier Studies, Held in Amman, Jordan*, vol. 1, BAR International Series 1084 (Oxford: Archaeopress, 2002), 231–32.
[427] Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 105.
[428] David M Jacobson, Nikos Kokkinos, and Joseph Patrich, eds., 'Herodian Entertainment Structures', in *Herod and Augustus Papers Presented at the IJS Conference, 21st-23rd June 2005* (Leiden; Boston: Brill, 2009), 181, http://dx.doi.org/10.1163/ej.9789004165465.i-418.
[429] Zeev Weiss, 'Buildings for Mass Entertainment: Tradition and Innovation in Herodian Construction', *Near Eastern Archaeology* 77, no. 2 (1 June 2014): 102–5, https://doi.org/10.5615/neareastarch.77.2.0098.

in Aelia Capitolina. Considering the presence of spectacle buildings in other cities it is nonetheless to be expected that there was one, even though the earliest source dates to the seventh century.[430]

Disregarding those buildings only broadly dated, a (re-)construction phase attributed to Hadrian can be seen in Aelia Capitolina, Caesarea, Tiberias, Gaza, and possibly Neapolis . Similarly, Septimius Severus' influence can be seen in Sebaste, Ascalon and possibly Emmaus (but as said, the amphitheatre of Emmaus may have been built later in the third century).

Concerning defences, only five of the settlements were fortified by the end of the second century. Of these, the walls of Gaza are only referred to in connection with the siege of Alexander, and appear in Late Antiquity on the Madaba map. The walls of Ascalon were the same earthen ramparts that had been built in the Middle Bronze Age, and while they were refortified late in the Hellenistic period, there is no indication whether they were in any useable state for defensive purposes before a restoration during the later third or fourth century.[431] As such, only the cities of Caesarea, Tiberias and Diocaesarea were clearly walled. The number of fortified towns increased in the following centuries, as is clear from the number of walled places shown on the Madaba map, where even Archelais, still a village in the second century, is shown as fortified. Aelia Capitolina had a garrison, but the city was not walled again until later in the third century.[432]

Cities with a regular street grid appear far less in this region than in the north. Interestingly, at Dor, it appears that an orthogonal grid was present from the Persian period (ca. 6th century B.C.E.) and continued in use throughout the Hellenistic period, but was no longer adhered to by early Roman times, as the Roman baths built in this period, and the second- or third-century theatre did not follow it. In this area, city layout appears to have been dictated far more by the shape of the terrain. Besides Magdala and Tiberias, only Herod's monumentalised cities of Caesarea and Sebaste had a clear orthogonal street grid.

2.2.4 Non-urban central places

As distances between the cities were not very large, with an average distance of 11,5 km to their nearest neighbour, as well as evenly distributed, there are relatively few areas in the region that

[430] Weiss, 100–102; Frank Sear, *Roman Theatres: An Architectural Study* (Oxford etc: Oxford University Press, 2006), 304; *Chron. Paschale*, 1,474.
[431] Lawrence E. Stager, John David Schloen, and Daniel M. Master, *Final Reports of the Leon Levy Expedition to Ashkelon. Ashkelon 1: Introduction and Overview (1985-2006)* (Winona Lake, Ind: Eisenbrauns, 2008), 215–16; B.Z. Kedar and W. G. Mook, 'Radiocarbon Dating of Mortar from the City-Wall of Ascalon', *Israel Exploration Journal* 28, no. 3 (1 January 1978): 175.
[432] Galor and Bloedhorn, *The Archaeology of Jerusalem*, 115.

lay outside optimal market distances. The largest areas not within the walking distance of major cities lie in Samaria, at a distance between 15 and 30 km around Sebaste and Neapolis. This includes, to the south, the regions around former toparchy capitals Thamna and Gophna, to the west part of the Sharon plain around Netanya, and north of Sebaste and Neapolis the region around Jenin, to the east the Jordan Valley and, beyond it, Perea. Furthermore, the region south of Jerusalem, around Hebron, also lies outside of urban coverage, as well as northern Galilee and the southern Golan.

In the Jordan Valley and Perea, it seems reasonable to assume that the villages which carried the name of the older toparchies retained their central function, such as Abila, Gadara, Amathous and Jericho. About Gadora (modern al-Salt – not the well-known Gadara near modern Jerash), little is known apart from a military inscription and a milestone, and Ptolemy considered it part of the Decapolis, rather than of the Perea.[433] North of Jericho in the Jordan Valley, either Archelais or Phasaelis (or both) were likely of some significance, with Archelais visible on the Madaba map as a walled town, and Phasaelis suggested by Mowry to have been an extensive settlement.[434] The same goes for Thamna and Gophna, thus closing the largest gap in the centre of the region. On the north side of the lake of Galilee, Bethsaida, renamed Julias by Philip the Tetrarch, may have acted as the centre for the region, which also remained a *klima* into the Byzantine period.[435]

Not every toparchy capital remained in existence into the Roman period. For instance, Narbata, 15 km northwest of Sebaste, was besieged and destroyed by Cestius Gallus in 66 C.E., as its siege camp and defensive walls mark the last period of habitation.[436] Instead, about 9 km north of Narbata, halfway towards Legio, Umm Rihan is described in the Samaria surveys as one of the larger villages in the region, at 3 to 4 hectares, with about a 100 courtyard houses, shops and a bath, and in the surrounding countryside around a hundred field towers, although these, whatever their function, may have gone out of use before the end of the second century.[437]

In the mountainous area east of the Dead Sea, Machaerus had a central, if rather inaccessible location, but was thoroughly destroyed after the First Jewish-Roman War. Similarly, the ceramics from the small port village and bath complex at Callirhoe suggest a habitation gap

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[433] Margaret O'Hea, 'Note on a Roman Milestone from Gadora (al-Salt) in the Jordan Valley', *Levant* 34, no. 1 (1 January 2002): 235–38, https://doi.org/10.1179/lev.2002.34.1.235; Ptol., *Geog.*, ed. Karl Müller (Paris: Alfredo Firmin Didot, 1883), 5.15.22.
[434] Lucetta Mowry, 'Settlements in the Jericho Valley during the Roman Period (63 B.C. - A.D. 134)', *The Biblical Archaeologist* 15, no. 2 (1 May 1952): 26–42, https://doi.org/10.2307/3209110.
[435] Rami Arav and Richard A. Freund, *Bethsaida : A City by the North Shore of the Sea of Galilee*, vol. 1 (Kirksville, Miss: Thomas Jefferson UP, 1995).
[436] Tsafrir, *TIR Iudaea*, 193; Adam Zertal, *The Manasseh Hill Country Survey. Vol. 1: The Shechem Syncline.*, Culture and History of the Ancient Near East ; Vol. 21.1. 183455843 (Leiden etc: Brill, 2004).
[437] Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 1314–15.

between the end of the first century and the Byzantine period, even though it is mentioned by Ptolemy.[438]

In the northern Galilee, Be'er Sheva or Bersabe, not to be confused with Be'er Sheva in Idumea, is noted by Josephus as the border between northern and southern Galilee, and one of the sites he fortified in defence against the Romans. It seems to have been one of the larger villages in the region. Even so, as Uzi Leibner showed, the village appears to have been declining in the second century and to have been abandoned by the second half of the third century. In its stead, nearby Kefar Ḥananya, more accessible and closer to the road towards Akko, became the larger village.[439] Further north, Kadasa (on Tel Qedesh), Meroth, Meron and Mafsheta could have been the most important villages. For Kadasa (or Kedesh, Cydasa) it is clear from Josephus that the village had become part of the territory of Tyre, showing the extent of that city's territory, at least in the first century. It seems to have been a large village, with two temples and several mausolea dating from the second to late third century.[440]

Southern Judea, also known as the Daroma, had become part of the territory of Eleutheropolis. As it nonetheless lay over 25 kilometres from Eleutheropolis, several settlements appear as viable candidates to have acted as central places for the area, such as Hebron, Caphar Baricha, Beth Zur and, at the edge of the 250mm isohiyet, perhaps Chermela, which in the late empire received a military garrison.[441] The former toparchy capital of Adora, like Marisa near Eleutheropolis, appears to have been destroyed.[442] It appears that Ziph was the toparchy centre of the area south of Hebron, at least between the Jewish Wars.[443]

Only the gap of settlements in the Sharon plain is currently hard to fill . Information in the TIR Iudaea is sparse, as for most of the coastal plain, and the area is covered by four maps in the Archaeological Survey of Israel that have not yet been published. In this region, the road station and village of Bethther on the Antipatris-Caesarea road known from the Antonine Itineraries and the Bordeaux Pilgrim, the nearby village of Theraspis, or the village of Natania on the coastal

[438] Yvonne Gerber, 'Review', *Bulletin of the American Schools of Oriental Research*, no. 312 (1 November 1998): 86–89, https://doi.org/10.2307/1357679; Christa Clamer, *Fouilles archéologiques de ʿAïn ez-Zâra/Callirrhoé, villégiature hérodienne*, Bibliothèque archéologique et historique ; t. 147. 852438184 (Beyrouth: Institut Français d'Archéologie du Proche-Orient, 1997).
[439] Leibner, *Settlement and History in Hellenistic, Roman, and Byzantine Galilee*, 122–28.
[440] Roi Sabar, 'Josephus' "Cydasa of the Tyrians" (Tel Qedesh) in Eastern Upper Galilee', *Journal of Roman Archaeology* 31 (ed 2018): 387–405, https://doi.org/10.1017/S1047759418001393.
[441] Tsafrir, *TIR Iudaea*, 103.
[442] Jones, *The Cities of the Eastern Roman Provinces*, 274.
[443] Jodi Magness, *The Archaeology of the Early Islamic Settlement in Palestine* (Eisenbrauns, 2003), 94, note 7; Jones, *The Cities of the Eastern Roman Provinces*, 261.

road may have been villages with a central function.[444] Similarly, on the north end of the plain, an imperial estate may have existed, centred around Bir el ʿAbd.[445]

That is not to say that important smaller settlements were only located outside city market radii, given for instance Arbela and Caphernaum in the Kinerret region, Nazareth close to Diocaesarea and Beth She'arim, within 15 km of Gaba, Legio and Diocaesarea. This last town is of additional interest, as at least during the third century it served as a burial location for Jews from many places throughout the Diaspora, not just from the region.[446] Other examples are Gazara in the territory of Emmaus and the port settlements belonging to Gaza, Azotos and Iamnia.

While focussing on cities and larger settlements, it should be kept in mind that many parts of the region saw a densely occupied rural landscape. For instance, even in the aforementioned 'gaps' in urban coverage, a dense rural settlement pattern emerges from the Samaria surveys of the late 1970s and 1980s, with several hundred Roman period sites identified. As indicated for southern Samaria, most sites are very small, with only 45 out of 215 indicated as 'large', meaning over 1 hectare in size.[447]

Similarly, there is no doubt that the Galilee was densely settled during the later empire, even judging only from the number of rural synagogues found in the region. Lapin argued, following Bar, that the population reached its peak during this period, while Uzi Leibner considers the second and third centuries to have been the most prosperous period in the region, while from the fourth century, despite the increased building activity in the region, there was in fact a population decline.[448] Jodie Magness has pointed out that the decline suggested by Leibner in the fifth century may be misleading, as it appears that the fifth century saw a lot of reuse of earlier coinage. Either way, the second and third century demographic rise of 10 to 15% in comparison to the first century in the Eastern Galilee suggested by Leibner does not seem unrealistic, although the margins given are rather wide.[449] Even so, at this optimum, the two largest settlements in the region, Arbel and Magdala, at just 2 km apart, still fall in the category of only 6

[444] Tsafrir, *TIR Iudaea*, 87, 193, 249.
[445] Note that the Ḥorvat Migdal mentioned by Applebaum lay about 2 to 3 km to the northeast of Bir el ʿAbd, and is definitely not the Ḥorvat Migdal mentioned in the TIR at 16 km to the south. Shimon Applebaum, 'Royal and Imperial Estates in the Sharon and Samaria', in *Judaea in Hellenistic and Roman Times : Historical and Archeological Essays*, ed. Shimon Applebaum, Studies in Judaism in Late Antiquity 40, 1989, 99; Tsafrir, *TIR Iudaea*, 186.
[446] Benjamin Mazar et al., *Beth She'arim* (Jerusalem: Massada Press, 1973).
[447] Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 1313.
[448] Leibner, *Settlement and History in Hellenistic, Roman, and Byzantine Galilee*, 362, note 54; Uzi Leibner, 'Settlement Patterns in the Eastern Galilee: Implications Regarding the Transformation of Rabbinic Culture in Late Antiquity', *In Jewish Identites in Antiquity: Studies in Memory of Menahem Stern, Edited by Lee Levine and Daniel Schwartz*, 2009, 272–73.
[449] Jodi Magness, 'Did Galilee Experience a Settlement Crisis in the Mid-Fourth Century?', *In Jewish Identites in Antiquity: Studies in Memory of Menahem Stern, Edited by Lee Levine and Daniel Schwartz*, 2009, 296–313; Leibner, *Settlement and History in Hellenistic, Roman, and Byzantine Galilee*, 347.

to 9 hectares; the six settlements in the next highest category he surveyed measured between only 4 and 6 hectares.

The lack of cities in some areas may also be explained by the presence of Roman imperial estates. Some former Hasmonean and Herodian crown lands had upon annexation or through inheritance become Imperial property. This is the case for Gerara, south of Gaza, which is still described as an estate (saltus Gerariticus) in the sixth century, and possibly for the former kingdom of Chalcis.[450] Between Caesarea and Sebaste, in the Sharon plain, Shimon Applebaum argued for imperial estates centered around Bir el 'Abd (close to current HaMa'apil), possibly an estate belonging to Herod Antipas, in the southwestern part of the toparchy of Narbatta. Sartre is somewhat sceptical, but does not explain why.[451] There are indications for imperial property at Jericho, Archelais and En Gedi, with plantations for palms and balsam possibly going back to the Persian period.[452] In Peraea Herodian crown land is suggested as well, as a royal palace had existed either at Amathous or Betharampta, later known as Livias and then Iulias.[453] On the coast, Jamnia and Azotos were in fact bequeathed to her personally around 10 C.E., and Jamnia seems to have remained royal property at least until the death of Herod Agrippa I.[454] Even so, while it is possible that large regions were estates in their entirety, like the Lebanese forest in the north, without clear evidence it is impossible to prove more than that estates existed in the Jordan Valley and in Perea, rather than that the Jordan Valley and Perea as a whole were Imperial estates.

What emerges from this is that in most areas of Roman Palestine, there were actually not that many central places that lacked urban status. Most settlements performing urban-like functions, in many cases former toparchy capitals, were sooner or later recognized as cities, resulting in a rather dense network of small cities. Some of the exceptions would be larger villages performing a secondary role within the territory of a self-governing city, such as the above-mentioned Kadasa, Arbela en Caphernaum, or for instance the ports of Gaza, Azotos and Iamnia. Others could be the centres of an imperial estate. As far as evidence permits any suggestion - admittedly the evidence is slim - such non-urban central places were almost all very small, up to 10 hectares at most.

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[450] Jones, *The Cities of the Eastern Roman Provinces*, 282.
[451] Applebaum, 'Royal and Imperial Estates in the Sharon and Samaria', 99,104; Sartre, *The Middle East under Rome*, 107, 208–9.
[452] Martin Hengel, *Judaism and Hellenism: Studies in Their Encounter in Palestine during the Early Hellenistic Period* (Wipf and Stock Publishers, 2003), 44–46.
[453] Jos., *Ant.*, XVII 277; Jos., *Bell. Jud.*, II 59.
[454] Sartre, *The Middle East under Rome*, 207–11; Samuel Rocca, *Herod's Judaea: A Mediterranean State in the Classic World* (Wipf and Stock Publishers, 2015), 213–16; Moshe Fischer and Tamar Taxel, 'Ancient Yavneh Its History and Archaeology', *Tel Aviv: Journal of the Institute of Archaeology of Tel Aviv University* 2007, no. 2 (1 September 2007): 221–24.

2.2.5 Conclusion

The cities of Syria Palaestina were mostly smaller than those found in the north. This can be explained by different choices in regional and political organisation going back to the Hellenistic period, resulting in fewer cities with large territories. Even so, there were several significant urban centres, such as Caesarea Maritima, Neapolis and Tiberias. As in Syria, the urban centres of Syria Palaestina were not limited to the coast, with Neapolis and Aelia Capitolina being obvious examples.

The impact of the Jewish Wars is widely evident among the cities of Syria Palaestina. Several places that played a central role in the organisation of the Jewish kingdom, both settlements like Narbatta as well as fortresses like Herodion, Masada and Machaerus, were besieged, destroyed and abandoned. Jerusalem, once the grandest city of the southern Levant, mostly lay in ruins.

Nonetheless, a markedly local character can still be ascribed to the cities of the region, with only a limited diffusion of the Roman ideal-type city. Both smaller cities like Dora and Antipatris, as well as larger ones like Gaza remained tell-based settlements. The urban layout of all cities was heavily influenced by the terrain, leaving little room for uniform street grids. And while theatres, like elsewhere, appear to have been widespread, other entertainment buildings appear to have been limited to the largest cities, with the few amphitheatres mostly limited to the Severans or later. For cities considered to have been (Roman-)Hellenistic, the lack of attested gymnasia is similarly interesting, and although Herod's 'multipurpose' buildings may have performed a function for athletic games, it remains remarkable that no gymnasia were built after the revolts. But especially notable, compared to the rest of the Roman Near East, is the lack of fortifications in the region. While it is possible to ascribe this to an attempt to avoid another uprising by keeping the cities weak, it is noteworthy that one of the places that did retain its fortifications became the new centre of Jewish leadership: Tiberias, paradoxically one of the more 'Hellenistic' cities of the region.

Maintaining local forms of control, some areas do not seem to have been governed from a city, but have been administered from non-urban centres, essentially using the same toparchy-structure that had been present in the region since the Ptolemies, and would remain so throughout the Roman period. Some toparchies, such as Thamna and Gophna, were eventually merged into the territories of cities, while in others the toparchy capitals were eventually promoted to urban status, like Nicopolis and Eleutheropolis. As such, it took over two centuries of Roman control before a city-based organisation was adopted in the greater part of the province.

2.3 Northern Arabia or the Hauran, including the Decapolis, Batanea, Auranitis and Trachonitis

2.3.1 Regional definition and known settlements

The northern part of the Provincia Arabia covered a large part of the Hauran, especially after the shift of the provincial border towards the north under the Severans. The Hauran is a volcanic plateau which, due to the fertile soils in its plains and valleys, combined with an above average rainfall, was an important grain-growing region (Figure 25).[455] The regional subdivisions of the northern Provincia Arabia are not entirely clear. The Hauran is generally split up between the Golan, the Hauran plain (also known as the Nuqrah and Jedur plains in the south and north respectively), the lava fields of the Leja or Trachonitis, and the Hauran Heights (Jebel al-ʿArab or Jebel al-Druze), identified as the Auranitis. The Gaulanitis clearly equates with the Golan, and the Leja is easily identified as Trachonitis, described by Strabo as hilly with many caves, which before his time were full of brigands.[456] Additionally, when Strabo talks about the Trachones in plural, he probably included the Aṣ-Ṣafā lava field as well. Things become somewhat more complicated when considering that the Golan and parts of the plains lay outside the Arabian province, even after the Severan changes to the provincial borders. There are some complications defining the extent of Batanea, which is usually described as the region between Damascus, the Trachonitis and Gaulanitis, but depending on the source can be understood to cover some of the neighbouring other regions as well. [457]

The Decapolis is interesting, on the one hand because it consisted of cities spread over three provinces: mostly in the north of Arabia and Palaestina, and for a small part in Syria Phoenice. On the other hand, it was also a relatively recent creation, established by Pompey in 63 B.C.E. through the grant of independence to a group of cities both in and around the Hauran.[458]

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[455] Ball, *Rome in the East*, 239; Shimon Dar, 'The Nabateans in the Hauran', in *The Nabateans in the Negev*, ed. Renate Rosenthal-Heginbottom ([Israel]: Reuben and Edith Hecht Museum, 2003), 45*; Shimon Dar, 'הנבטים בחורן [The Nabateans in the Hauran]', in *The Nabateans in the Negev*, ed. Renate Rosenthal-Heginbottom ([Israel]: Reuben and Edith Hecht Museum, 2003), 67, 68 figures 103 and 104; See now also for an excellent overview: Jérôme Rohmer, *Hauran VI: d'Aram à Rome : la Syrie du Sud de l'âge du fer à l'annexion romaine (XIIe siècle av. J.-C. - Ier siècle apr. J.-C.)*, Bibliothèque archéologique et historique 217 (Beyrouth: Institut Français d'Archéologie du Proche-Orient, 2020).

[456] Strab., 16.2.16, 21.

[457] Thibaud Fournet and Thomas Weber, 'Adraha (Deraa) romaine et byzantine : développement urbain et monuments', in *Hauran V : la Syrie du sud du néolitique à l'antiquité tardive : recherches récentes : actes du colloque de Damas 2007. Vol. I.*, by Michel al-Maqdissi et al., Bibliothèque archéologique et historique ; t. 191. 852438184 (Beyrouth: Institut Français d'Archéologie du Proche-Orient, 2010), 171.

[458] Moors, 'De Decapolis', 1–3.

With the creation of the Decapolis, Pompey did not so much create a single political unit, but rather a group of cities independent from the rulers of the region, just as he reinforced local government among the coastal cities. This situation of independence lasted only for a relatively short period, considering that Augustus granted the cities to Herod. It actually became an administrative unit under Roman control from Herod's death to the formation of the Provincia Arabia, as a subdivision

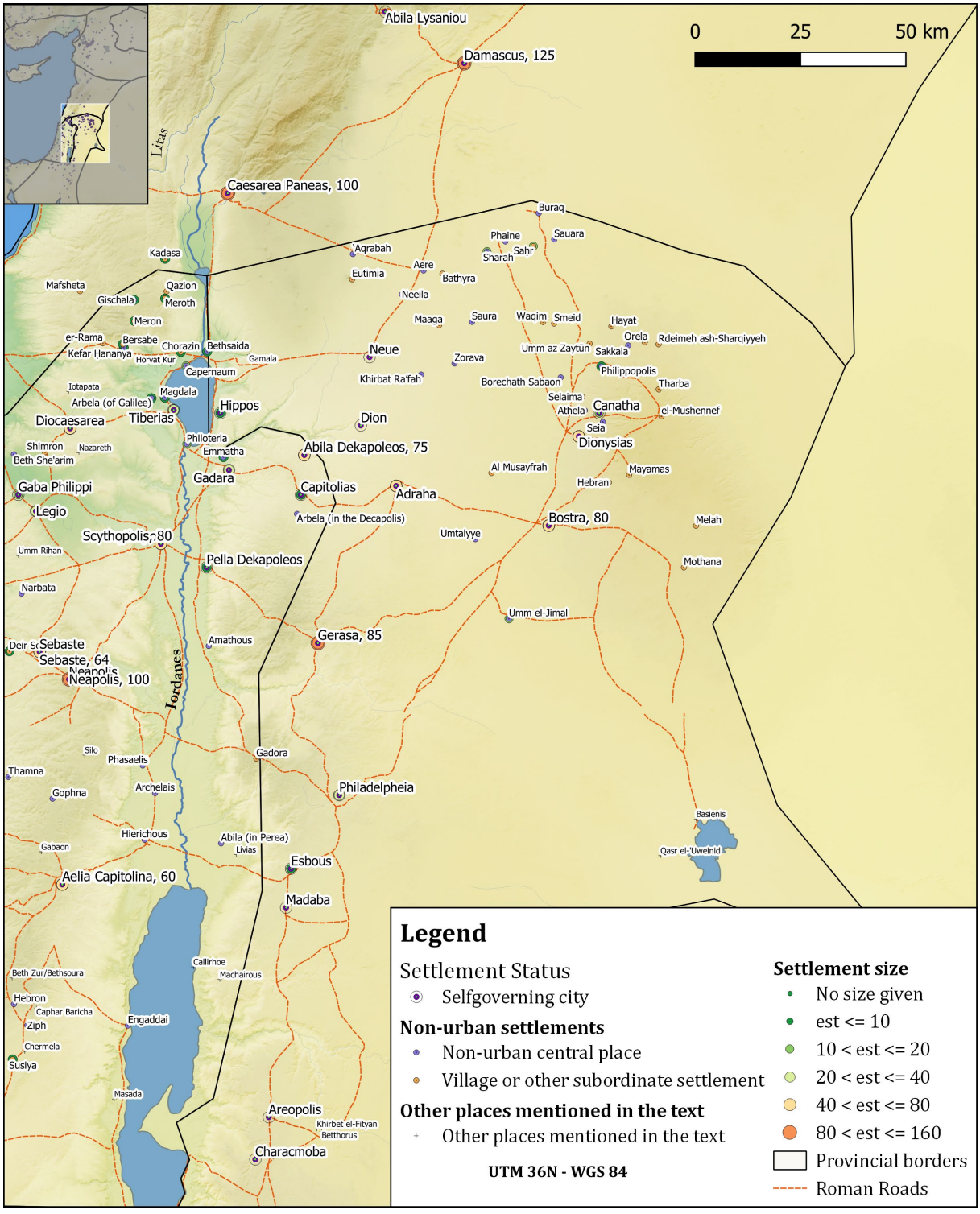

Figure 25 Northern Arabia

of the Provincia Syria, but after 106 C.E. the cities were distributed over three different provinces, with the larger part in Arabia. Ptolemy's continued use of the term in his geography, written several decades later, suggests that the term still held meaning at that time.[459] It is of course possible that the sources he used dated to before 106 C.E., but as a second-century inscription from Abila and the use of the term by fourth-century Christian writers indicate, there is no reason to doubt the continued use of the name Decapolis, if only as a geographical term.[460]

The extent of the region can be roughly defined by the cities that were considered to be part of it, which means it included territory from Philadelphia (Amman) to Damascus. Therefore it includes all of the above-mentioned regions as well, and is in that sense not limited to the area marked as Decapolis in Figure 21. There is some discussion as to whether Damascus itself should be included in the Decapolis. In this thesis, Damascus will explicitly not be considered part of the region. Jones, however, follows Pliny and Ptolemy, who both list Damascus among the Decapolitan cities, indeed with a hint from Pliny that most but not all writers before him include the city.[461] Kropp lends more weight to Josephus calling Scythopolis the largest city of the Decapolis, and the use of a non-Pompeian era by Damascus is significant, whereas the other cities start their calendars from Pompey.[462] Ball mentions in passing that Damascus was only part of the Decapolis briefly during the first century.[463]

Despite lacking any continued political meaning, the continued use of the Decapolis as a regional term suggests the existence of a perceived regional coherence. The expanded road network, with for instance a new road leading from Bostra to Damascus through the heart of the unhospitable Trachonitis rather than around it, makes it easier to consider the wider region as a whole, rather than a series of smaller sub-regions.[464] If anything, the presence of *bouleutai* of Bostra living in villages within the territories of Decapolitan cities would indicate as much.[465]

The state of knowledge on the settlements of the Hauran and the Decapolis is reasonable. While some places found in ancient texts have not been located, such as the towns in Batanea mentioned by Ptolemy, most of the major places known from written sources have been identified. The notable exceptions are Dium or Διον, for which the identification with Tell al-Ash'arī is the most likely option, and Raphana, possibly located at er-Rāfeh, close to Shēkh Miskīn. Others suggest it should be equated with Capitolias, in which case er-Rāfeh would have to be equated with the

[459] Ptol., *Geog.*, 5.15.22.
[460] Moors, 'De Decapolis', 3–4.
[461] Plin., *HN*, 5.16; Jones, *The Cities of the Eastern Roman Provinces*, 455 note 5.
[462] Andreas Kropp and Qasim Mohammad, 'Dion of the Decapolis. Tell al-Ash'arī in Southern Syria in the Light of Ancient Documents and Recent Discoveries', *Levant* 38, no. 1 (1 June 2006): 127, https://doi.org/10.1179/lev.2006.38.1.125.
[463] Ball, *Rome in the East*, 181–82.
[464] Moors, 'De Decapolis', 62–63, 76ff, 590, map 2.
[465] Moors, map XX.

Neapolis mentioned in late antique bishopric lists.[466] The place called Aenos on the Tabula Peutingeriana, on the road from Bostra to Damascus, tends to be identified with either the village of Buraq, late antique Constantia, or with Phaine (El Mismiyeh); the former option is more generally accepted.[467] This means that, of the towns mentioned by Ptolemy in the Decapolis and Coele Syria, only Ἴνα (possibly Aenos?), Σαμουλίς (suggested to be Simlin) and Σάανα (for which no identification is present yet) are as yet not identified.[468] In the Trachonitis and the area around Sakkaia there is no secure location for Γέῤῥα, Ἐλέρη, Νέλαξα and Ἄδραμα.

Ptolemy mentions Adra in the Decapolis, but also two localities named Adra and Adrou in Arabia. The latter would then be Udruh near Petra, and one of the first two the Adra at Der'a. Considering the different coordinates given for the two places, Ptolemy did mean two different places, but it is hard to determine whether he considered the Adra or Adraha at Der'a to be part of Arabia or the Decapolis.[469] Four other places are mentioned by Ptolemy in Arabia, which should lie northeast of Esbous and Madaba: Ἄνιθα, Σουράτθα, Μέσαδα, and Κοράκη. Of these, only Ἄνιθα, known as Thantia on the Peutinger Table, has been identified, at modern al Tuğra. None of the others are identifiable.[470]

2.3.2 Settlement size and distribution

The cities of the Hauran were clearly not distributed evenly across the landscape. With a mean nearest neighbour distance of 15,5 km they do lie quite close together. Especially when this is put against the mean nearest neighbour distance for all Roman Levantine cities together, which lies at 33.1 km. The cities can be placed in two major groups. The first is that from Hippos to Adraha, with Scythopolis and Pella lying slightly further away at 25 km from the cluster. The second is that from Bostra to Canatha, with the later additions of Philippopolis and Maximianopolis. Gerasa, Gadora and Philadelphia lie further away and further apart, at 30 to 35 km from their neighbours.

[466] Moors, 15 note 1, 187 3; Kropp and Mohammad, 'Dion of the Decapolis. Tell al-Ash'arī in Southern Syria in the Light of Ancient Documents and Recent Discoveries', 125–26; Jones, *The Cities of the Eastern Roman Provinces*, 259; Maurice Sartre, 'Les Metrokomiai de Syrie Du Sud', *Syria* 76, no. 1 (1999): 216, https://doi.org/10.3406/syria.1999.7611.
[467] Moors, 'De Decapolis', 72–76.
[468] Talbert, *Barrington Atlas of the Greek and Roman World. Map-by-Map Directory*, 1070.
[469] Ptol., *Geog.*, 5.15.23; 5.17.5, 7.
[470] MacAdam actually states that only four out of 28 places in Arabia Petraea remain unidentified, Maguza, Surattha, Mesada and Adra, confirming that those around Bostra are unlocatable. He apparently does know the location of Κοράκη, but fails to mention where that might be. See Henry Innes MacAdam, 'Strabo, Pliny the Elder and Ptolemy of Alexandria: Three Views of Ancient Arabia and Its Peoples', in *L'Arabie Préislamique et Son Environnement Historique et Culturel, Travaux Du Centre de Recherche Sur Le Proche-Orient et La Grèce Antiques*, vol. 10, 1989, 308–10.

Table 5 City sizes Decapolis

Name	Area
Caesarea Paneas	100
Gerasa	85
Scythopolis	80
Bostra	80
Abila Dekapoleos	75
Dionysias	42
Adraha	41
Gadara	30
Philadelpheia	28
Canatha	16
Pella Dekapoleos	10
Hippos	9
Kapitolias	7

The size range of the Decapolitan cities is rather wide, and while none are as large as some of the cities in northern Syria, the five larger ones, between 75 and 100 ha, sit firmly within the upper range of cities of the Near East. In the third century Philippopolis would join the largest cities of the region at almost 100 hectares, although this may not have been sustainable in the long run. As such, the region had a rather high concentration of large urban sites, making the local distribution rather top-heavy. Geographically, four of the five smallest cities lie within the western group, all within 10 to 20 km distance from the large cities of Abila (and Scythopolis in the case of Pella). Only Canatha lies in the east, close to Dionysias, at about 7 km distance. The largest settlements are further away from each other, with especially Gerasa and Caesarea Philippi more remote from the other cities.

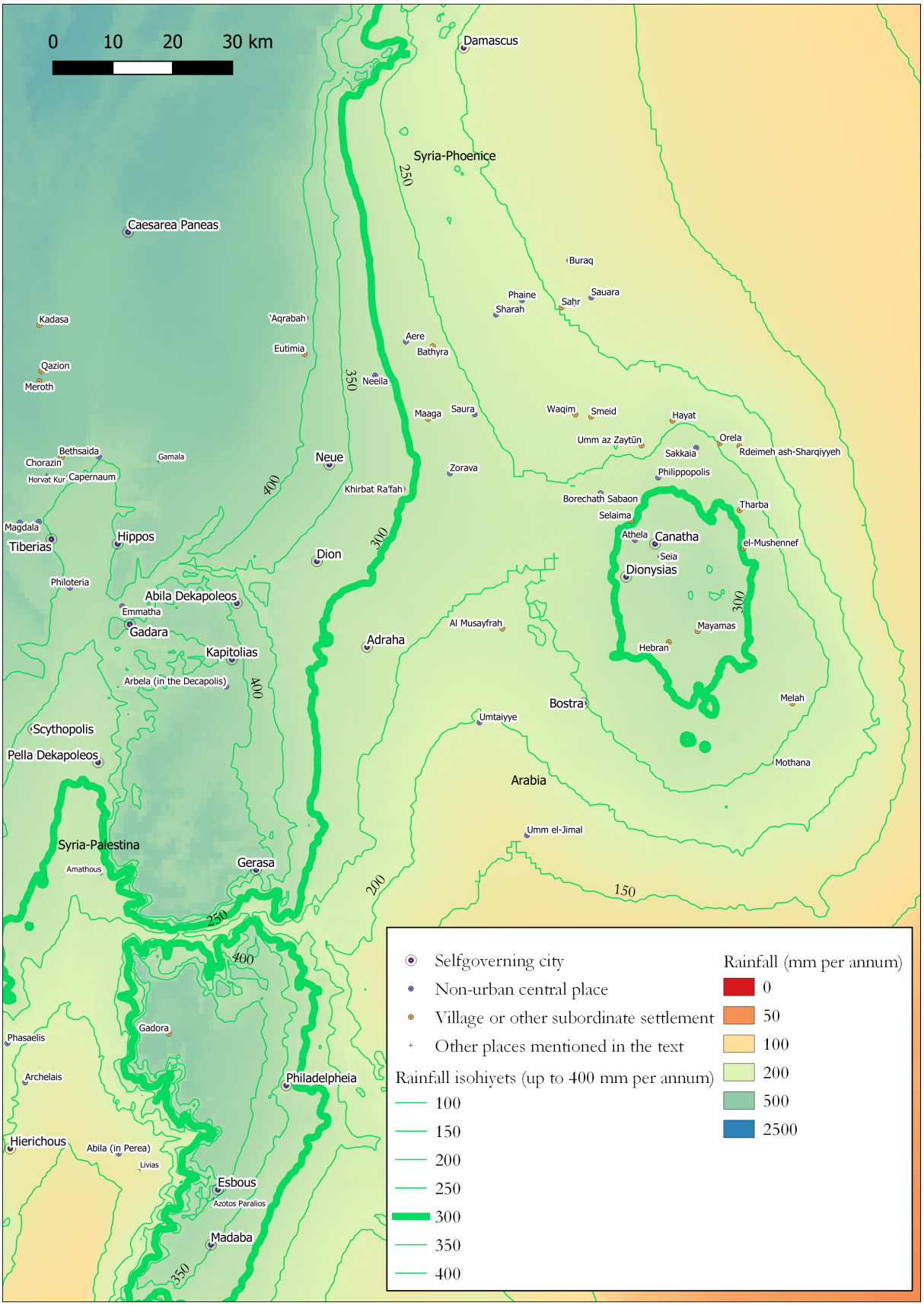

Figure 26 Rainfall in the Decapolis

It should be noted that in this region a 20 km distance can make the difference between enough

rainfall to sustain agriculture and land that is too dry, allowing nomadic pastoralism at best. It appears that the cities in this region were clustered in the areas receiving the most rainfall. As Figure 26 shows, all cities in the region are located in higher rainfall zones, while only some of the larger secondary settlements, Umm el-Jimal in the south and several villages at the north-western edge of the Leja, lie beyond it. It appears that settlement locations here were dictated to a very large degree by natural limitations.

As Braemer et al. describe: "the Jebel al-Arab acts both as a water tower, with generous flows on its often forested western flank, and as a more abrupt climatic frontier on its eastern side." The rains fall mostly in early autumn and late winter, while meltwater from the snows on the Jebel al-Arab provides water for a longer period. [471]

The main resources of the Hauran were, and are, animal husbandry and farming. While water catchment techniques were applied within the Hauran, this was mostly to store and provide drinking water for people and livestock, while managed irrigation was only applied in gardens in villages and around towns. Hydraulic installations aimed at irrigation, milling practices (in this region only from the 7th century onwards) and the like were relatively marginal.[472] Settlement location was dependent on water availability and catchment techniques, with settlements located either where water was available or where water could be brought by means of canals.[473] This could be done by capturing seasonally available waters, such as flash floods of wadis during the rainy periods, by wells accessing underground river water or natural clefts accessing sub-basaltic aquifers. A large number of villages were located at less than a kilometre from temporary water sources, especially along the three larger wadis, while 70 sites from multiple periods in the Nuqra plain and Sakkaia were supplied through canals. Sites dependent on catchment systems for spring water were to be found on the Jebel al-Arab and along the northern and western edges of the Leja. In the case of Bostra, Adraha, Dionysias and Philippopolis, water was brought from permanent springs on the Jebel al-Arab by means of covered aqueducts, and by shallow channels to villages around the Jebel.[474]

These water catchment techniques appear to have been applied in the region already from the Middle Bronze Age. The Roman period saw a great expansion of canal networks throughout the Nuqra, the construction of aqueducts towards the towns of Adraha, Dionysias and Bostra, and the construction of several new large-capacity cisterns. However, as can be seen at Bostra, under

[471] F. Braemer et al., 'Long-Term Management of Water in the Central Levant: The Hawran Case (Syria)', *World Archaeology* 41, no. 1 (1 March 2009): 36–37, https://doi.org/10.1080/00438240802666424.
[472] Braemer et al., 36–40.
[473] David Kennedy, 'Water Supply and Use in the Southern Hauran, Jordan', *Journal of Field Archaeology* 22, no. 3 (1995): 275–90.
[474] Braemer et al., 'Long-Term Management of Water in the Central Levant', 40–42, 45–46.

the Nabateans such cisterns were constructed as well. It is quite conceivable that access to a perennial water supply from the Jebel Al-Arab was what allowed Adraha and Dionysias expand to their Roman size. So, even if at some locations a mixed practice of irrigation and dry farming was practiced, the primacy of dry farming makes the 250mm annual rainfall border even more relevant, as it appears that water was not diverted into more arid zones for farming activities.[475]

While throughout the Hauran traces of Middle Bronze to Iron Age habitation has been attested at various sites, a habitation gap from the later Iron Age up to the late Hellenistic period seems to be attested at most sites. At the beginning of the second century B.C.E. new habitation begins at various tell sites, among them several of the places that would become cities of the Decapolis. Sites in the plains going back to this time were Bostra, Dion, Dionysias and perhaps Canatha, but the evidence for the latter is based on uncertain typology of buildings, and still only dated to the late-first century B.C.E..[476] To the west, the tell at Scythopolis was occupied in the Hellenistic period, and was granted urban status under the Seleucids, and Pella appears to have been inhabited as well.[477] Hippos, on the coast of the lake of Galilee, seems to date to the second century. In the south, Philadelphia was one of the older Hellenistic foundations, dating to the early third century B.C.E.. For Gerasa there is evidence for occupation in the later Hellenistic period.[478]

In the wider Roman Near East, new foundations were relatively rare. It is noteworthy that three are found in the Decapolis region, although strictly speaking only one took place in the studied period, the foundation of Capitolias at the end of the first century. But while it did strike its own coinage and appears to have had a theatre, it remained exceptionally small, and the history of its promotion to urban status is unknown. As Lenzen has described it, it was hardly any more urban than the nearby village of Arbela (modern Irbid), although at that point he was not yet aware of the theatre of Capitolias, giving it a slightly more urban appeal.[479] Far larger were the later foundations of Philippopolis at the village of Shahba and Maximianopolis at Sakkaia (Shaqqa). It seems clear, however, that the elevation by Emperor Philip I of his place of birth from a large village to a city, overshadowing most others around it, was only successful to a limited degree. As Darrous and Rohmer indicate, it appears that large parts of the expanded city remained

[475] Sartre, *The Middle East under Rome*, 218–19.
[476] Rohmer, 'Late Hellenistic Settlements in Hawrân'; Rohmer, *Hauran VI*, 473–536.
[477] Tsafrir and Foerster, 'Urbanism at Scythopolis-Bet Shean in the Fourth to Seventh Centuries', 86; Robert Houston Smith and John Lawrence Angel, *Pella of the Decapolis. Vol. 1: The 1967 Season of the College of Wooster Expedition to Pella* (Wooster, Ohio: College of Wooster, 1973).
[478] Arthur Segal and Michael Eisenberg, 'Sussita-Hippos of the Decapolis: Town Planning and Architecture of a Roman Byzantine City', *Near Eastern Archaeology* 70, no. 2 (2007): 86.
[479] E. a Knauf and C. j Lenzen, 'Beit Ras/Capitolias. A Preliminary Evaluation of the Archaeological and Textual Evidence', *Syria* 64, no. 1 (1987): 21–46, https://doi.org/10.3406/syria.1987.7002; C Lenzen, 'Kapitolias—Die Vergessene Stadt Im Norden', in *Gadara - Gerasa Und Die Dekapolis*, ed. Adolf Hoffmann and Susanne Kerner (Mainz am Rhein, 2002), 36–45; Wajeeh Karasneh, 'New Discovery in Jordan at Beit-Ras Region (Ancient Capitolias)', *OCCIDENT & ORIENT*, 2002, 10.

uninhabited, and some of the monumental constructions were never quite finished. Furthermore, its hinterland was severely restricted by the two cities already existing to the south, and the foundation of Maximianopolis 7 km to the north.[480]

In the Roman period Bostra was undoubtedly the political centre of the region, with the presence of the headquarters of the Legio III Cyrenaica and the seat of the governor, who resided there perhaps from the creation of the province, but certainly from Hadrian onwards.[481] It was, however, not the only large city of the Hauran and the Decapolis. Haensch suggests several other cities functioned as assize centres, of which Gerasa was most likely also the seat of the financial procurator. In the south he suggests Petra, which may have been the meeting place of the koinon,[482] and Rabbath Moab, both of which will be treated below in the section on south Arabia. In the north, Philadelphia may have been a fifth assize centre.[483]

2.3.3 Public buildings

In Table 6 below, an overview is given of the building types known to have been present in cities of the Decapolis. Military include city walls and military garrisons, the latter only present in Bostra. Commercial infrastructure includes bridges, public squares and colonnaded streets, which were present in nearly all cases where a commercial building is indicated, colonnades limited to a single building, basilicas, *macella*, and shops. Only in the cases of Capitolias and Abila, no colonnaded street has been found; instead the former had a market, while the latter had two basilicas. Shops were usually present in colonnaded streets, but have only been entered where this was explicitly stated in research. Public squares include any type of forum, agora or plaza, such as the oval plazas in Bostra and Gerasa. While some researchers are strict in whether they define an open space as a forum or agora based on the presence of specific public buildings and the presumed function of that space, many are far more liberal in assigning the label forum or agora, rendering the terms used in the literature virtually meaningless, and thus retaining any such distinction here useless as well.[484] Baths and water provision includes baths, aqueducts and cisterns. Nymphaea are mentioned separately, as will be explained below. Status buildings consist of decorative and triumphal arches, as well as tetrapylai and tetrakioniai. Elite buildings include the royal palace in Caesarea Paneas, which was converted in the second or third century to a

[480] Nouha Darrous and Jérôme Rohmer, 'Chahba-Philippopolis (Hauran) : Essai de Synthèse Archéologique et Historique', *Syria* 81 (2004): 21, 27, 30.
[481] Haensch, *Capita provinciarum*, 238–42.
[482] Haensch, 242, also note 60.
[483] Haensch, 243.
[484] See for instance the discussion in Ball, *Rome in the East*, 296–98.

bathhouse, and a possible Nabatean palace in Bostra, that may have been overbuilt by the 6th-century 'Trajan's palace'.[485]

Table 6 Known structures Decapolis up to the Severi

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	Nymphaeum	Grand Total
Bostra	4	7	1	2	3	2	1	**20**
Scythopolis	3	7		3	0	3	1	**17**
Gerasa	3	4		4	1	3	1	**16**
Gadara	2	3		3	1	2	2	**13**
Dionysias	4	3		2	1	2	1	**13**
Abila Dekapoleos	3	3		1	1	1		**9**
Hippos	2	3		2	1	1		**9**
Canatha	2	1		1	0	3	1	**8**
Caesarea Paneas	2	2	1	1		1		**7**
Philadelpheia	1	3		2	0		1	**7**
Adraha	2	2		1	0	1		**6**
Pella Dekapoleos	1			1		1	1	**4**
Capitolias		2		1	1			**4**
Grand Total	**29**	**40**	**2**	**24**	**9**	**20**	**9**	**133**

When studying the distribution of known buildings in the Decapolis, it is striking how much is known about the cities of this region, especially in comparison with the northern Syrian cities, but also compared to the Levant in general. The fourteen towns shown in Table 6 encompass a third

[485] Vassilios Tzaferis, 'Caesarea Philippi (Paneas) in the Roman and Byzantine Periods', *The Archaeology of Difference: Gender, Ethnicity, Class and the 'Other' in Antiquity: Studies in Honor of Eric M. Meyers*, 2007, 338; Sartre, *Bostra. Des Origines à l'Islam.*, 96.

of the structures known within the cities of the Levant studied here. An overview such as this of course reflects the state of research rather than the actual level of construction in the period of study, but it still allows for some insights.

Several places are not present in the table. Dion is missing, as its location is only tentative, as well as Raphana (which may be identified with Capitolias). Earlier studies of the proposed location of Dion suggest the presence of at least a small theatre and water conduits, and a nearby bridge over the Wādi al-Ehrēr.[486] Philippopolis is not present, as all public buildings date to later in the third century. It was still a large village in the period up to the Severi.[487] The same goes for Maximianopolis, founded several decades later at Sakkaia. Umm el-Jimal was also a village, although at this point construction could already have started on the defensive walls of the later town.[488]

Of those places which had fewer known buildings, in some cases this is due to limited knowledge. Philadelphia, Capitolias and Adraha were all to a large degree overbuilt by later construction. Hippos, Canatha and Pella are, however, well studied, and the more limited number of buildings may reflect the small size of the cities in comparison to the other Decapolitan cities.[489] On the other hand, Gadara, which measured only a quarter of the size of the larger cities, still had as wide a variety of buildings as its larger siblings.

One very interesting trend is that many of the cities contain a nymphaeum. While such forms of water display are known throughout the rest of the Levant, it is highly remarkable that of the 18 nymphaea currently known in this study for this period, nine are located in the Decapolis – one more if including the later one of Philippopolis as well.

This connects to the existence of a type of temple specific for the region, the *kalybe* temple, whose design bears a strong resemblance to nymphaea, but most notably is lacking any form of water

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[486] Zeev Weiss, 'Buildings for Mass Entertainment in the Cities of the Decapolis', *ARAM Periodical* 23 (2011): 369; Kropp and Mohammad, 'Dion of the Decapolis. Tell al-Ash'arī in Southern Syria in the Light of Ancient Documents and Recent Discoveries', 133–34; G. Sehumacher, 'Unsere Arbeiten Im Ostjordanlande', *Zeitschrift Des Deutschen Palästina-Vereins (1878-1945)* 37, no. 2 (1 January 1914): 125 for the theatre.

[487] Darrous and Rohmer, 'Chahba-Philippopolis (Hauran)'; Hassan Hatoum, 'L'antique Chahba-Philippopolis', *Bulletin d'études Orientales* 52 (2000): 135–42.

[488] Bert de Vries and John Wilson Betlyon, *Umm El-Jimal : A Frontier Town and Its Landscape in Northern Jordan. Vol. 1: Fieldwork 1972-1981*, Journal of Roman Archaeology. Supplementary Series, No. 26 (Portsmouth, RI: Journal of Roman Archaeology, 1998).

[489] Robert Houston Smith, Leslie Preston Day, and Frank L. Koucky, *Pella of the Decapolis. Vol. 2. Final Report on the College of Wooster Excavations in Area IX, the Civic Complex, 1979-1985* (Wooster, Ohio: College of Wooster, 1989); Klaus Stefan Freyberger, 'The Roman Kanatha: Results of the Campaigns in 1997/1998', *Bulletin d'études Orientales* 52 (2000): 143–56; Klaus Stefan Freyberger, 'The Polis of Kanatha: Hellenisation and Romanisation in Late First Century BC.', *The Institute 2002/2003: Some Remarks on the Current Situation in the Middle East*, 2003, 4; Segal and Eisenberg, 'Sussita-Hippos of the Decapolis'.

display. Their name comes from an inscription at the temple in the village of Umm az-Zeitūn, but has not been attested elsewhere.[490] Some have stated that two buildings identified as nymphaea, at Hippos and Philadelphia, may in fact have also been *kalybe* temples.[491] For Hippos, excavators have confirmed this, but in the case of Philadelphia, Ball's statement that the building lacked any water infrastructure appears to be incorrect.[492] On the other hand, the *kalybe* of Bostra is now considered to be a nymphaeum.[493]

Kalybe temples have often been linked to the imperial cult, but this identification has been called into question, except perhaps in the case of Philippopolis.[494] Whether a *kalybe* or a nymphaeum, the structure at Philadelphia has been linked to the imperial cult.[495] Ideas about the construction date of *kalybe* temples have also differed significantly. Where Segal considers these to be 3rd-century C.E. structures (which at least in the case of Umm az-Zeitūn and Philippopolis seems reasonable), Ball strongly suggests that the dating of these buildings was based exactly on their "superficial resemblance to a type of monument (a nymphaeum) from which they so demonstrably differ", and that a Nabatean identification would make more sense; in his eyes, they have more in common with the rock façades of Petra, with the building functioning essentially as a backdrop for rituals performed in front of them.[496]

Whether the temples in the cities had any relation to imperial cult, whether they should be dated to the third century or before, and whether they should even be called *kalybe* temples, at the very least it can be said that their shared architectural form was a typical feature for the cities, and some villages, of the Decapolis region.

In other respects, the Decapolitan cities are more similar to the other cities of the southern Levant. For most, the main commercial location appears to be one or several colonnaded streets, besides, and in some cases instead of, public squares. Theatres are present in nearly all cities, and in the smaller cities at least a small theatre or odeion is to be found. As Zeev Weiss states in his overview of entertainment structures in the Decapolis, the earliest of these were built in Scythopolis and Gadara in the first half of the first century C.E., and they continued to be built throughout the second century into Severan times. The hippodromes were built in the second century;

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[490] Arthur Segal, 'The Kalybe Structures: Temples of the Imperial Cult in Hauran and Trachon: An Historical-Architectural Analysis', *Assaph - Studies in Art History* 6 (2001): 91–118.
[491] Ball, *Rome in the East*, 292–94.
[492] Segal and Eisenberg, 'Sussita-Hippos of the Decapolis', 106; Mohammad El-Khalili, 'Restoration Interventions at the Roman Nymphaeum in Amman: Identification and Evaluation', *Conservation and Management of Archaeological Sites* 16, no. 4 (2014): 341–58.
[493] Jacqueline Dentzer-Feydy and Michèle Vallerin, *Bosra aux portes de l'Arabie* (Beyrouth etc: Institut français du Proche-Orient, 2007), 230–34.
[494] Segal, 'The Kalybe Structures'; Ball, *Rome in the East*, 292–94; Butcher, *Roman Syria and the Near East*, 360–61.
[495] Sartre, *The Middle East under Rome*, 399–400.
[496] Segal, 'The Kalybe Structures', 106; Ball, *Rome in the East*, 292.

interestingly, those at Scythopolis and Gerasa were converted into amphitheatres in the fourth century.[497] This also highlights the general absence of amphitheatres before this time, as was the case in almost the entire Near East.

A large proportion of the Decapolis cities was fortified, and to a higher degree than cities were on an overall basis in the Near East. Of the dated walls still standing in the period under study, those of Hippos date back to the second half of the second or early first century B.C.E.. That is not to say there were no earlier walls, as at the location of various cities fortified settlements are known to go back far longer, as attested by for instance the Bronze Age ramparts at Bostra and Tell al-Ash'arī, or Iron Age II at Suweida and Amman, sometimes with Hellenistic fortifications following the course of the older ones.[498] But only in the case of Hippos are there clear indications that earlier - in this case late Hellenistic - walls were still in use throughout the Roman period.[499]

The walls of Gerasa and Gadara are dated to the first century C.E., as well as the walls of Sharah, the only secondary settlement in the region known to be fortified. The walls of Bostra are dated to the second century, but may possibly have replaced earlier Nabatean walls. Not present in the table above are the fortifications built in later periods: the walls of Adraha seem to date to the second half of the third to the early fourth century (earlier walls are not attested), as did those of Canatha, Scythopolis, and Philadelphia. At the same time, reconstruction or expansion also occurred in Gerasa, Bostra, and Gadara.[500] Only Pella and Caesarea Philippi were never fortified, although for the latter Tzaferis assumes that a wall was there, but simply has not been found yet.[501]

Apart from these later fortifications, it is hard to pinpoint region-wide construction phases such as those recognizable in several cities of northern Syria after the second-century earthquakes. Not only are most structures dated rather broadly, to a specific century at best, but many are not dated at all or only described as 'Roman', while the sample of cities in the region is too small to reliably describe trends. With some reserve it can be stated that, where this is discernible, construction of buildings that were still in use in the Roman period followed the same pattern as that described for theatres, as mostly starting in the first century B.C.E. in four cities, barring some possibly earlier temples. In the first century the number of new constructions triples, with building now taking place in nine cities, to continue at a slightly lower rate in the second century, in seven cities (and mostly focussed in Bostra and Gerasa).

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[497] Weiss, 'Buildings for Mass Entertainment in the Cities of the Decapolis', 371–73.
[498] Rohmer, 'Late Hellenistic Settlements in Hawrân'; Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 1247.
[499] Segal and Eisenberg, 'Sussita-Hippos of the Decapolis', 95.
[500] Fournet and Weber, 'Adraha (Deraa) romaine et byzantine : développement urbain et monuments', 189; Adolf Hoffmann and Susanne Kerner, 'Topographie und Stadtgeschichte von Gadara/Umm Qais', in *Gadara - Gerasa und die Dekapolis* (Mainz am Rhein: Philipp von Zabern, 2002), 98–124; Freyberger, 'The Roman Kanatha: Results of the Campaigns in 1997/1998', 150–51.
[501] Tzaferis, 'Caesarea Philippi (Paneas) in the Roman and Byzantine Periods', 340.

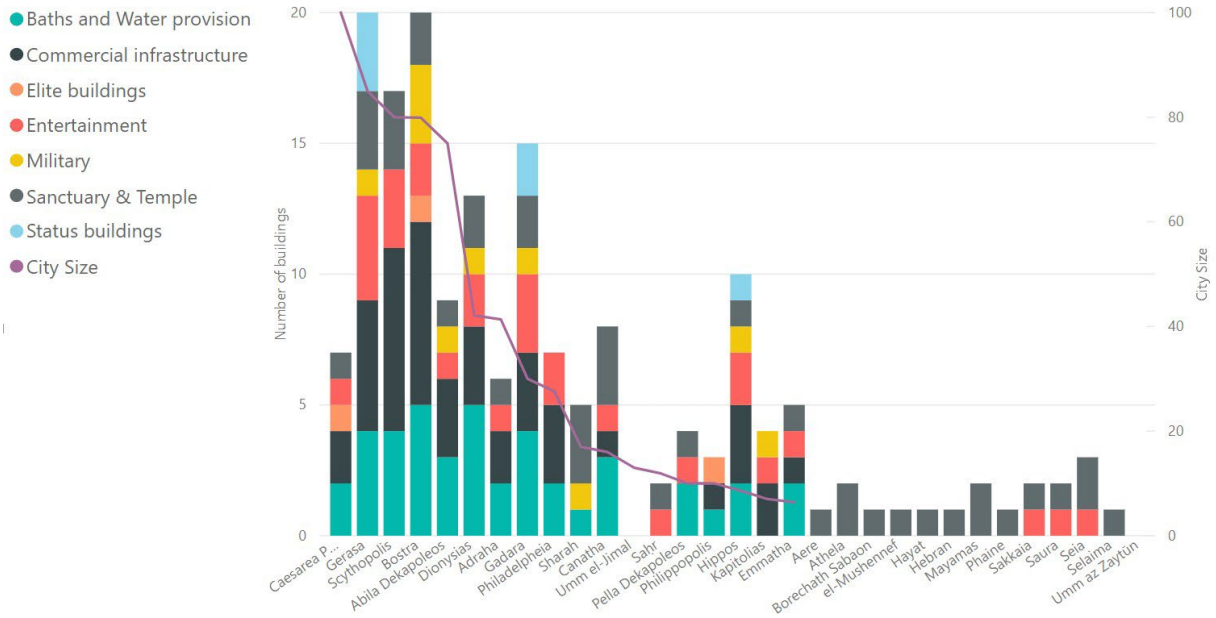

Figure 27 Number of buildings against settlement size in the Decapolis

In Figure 27 we can see some correspondence between settlement size and the total number of known buildings for the Decapolis. Additionally, the larger cities tend to have a more diverse set of public buildings. Hippos clearly breaks the trend in both respects, as a very small city with a very rich and diverse portfolio of public buildings. On the whole however it is clear that the largest cities stood out in more respects than settlement size alone.

2.3.4 Non-urban centres: μητροκωμίαι and village rule

Jones described the cities of the Decapolis as little more than larger villages, with village communities the defining element of especially the northern Decapolis. In his opinion "the villages were not, as in Egypt, and apparently in the Jewish kingdom, mere cogs in the administrative machine."[502] According to him, the cities of the region must have been especially small because of the short distances at which boundary stones lay between some cities and neighbouring villages, which he therefore considered to be independent. And inscriptions in many of the villages throughout the Hauran show a variety of and evolution in village magistrates, suggesting a high level of autonomy. With urban territories barely larger than those of villages, cities were 'merely glorified villages'. Combined with the presence of independent villages, this added up, in his perspective, to a region where villages were the normal social and administrative structure.[503]

Moors showed, however, that it is far more plausible that most of these villages were part of a city's territory, and that in these cases a differentiation should be made between the territory of

[502] Jones, *The Cities of the Eastern Roman Provinces*, 286.
[503] Jones, 284–88.

a city in the narrow sense, i.e. the area directly surrounding the city, and in a broad sense, including the dependent villages and their territories. Border stones like these would rather indicate the border between the city's territory in the narrow sense and that of a dependent village.[504]

Looking at the village magistrates, Grainger found no indications of any functions reflecting administrative roles, contrary to Moors, who interprets various titles along these lines.[505] Instead, Grainger argues that these were more likely temporary executive offices related to public works in the village. Considering the militarized character of the region from the third century onwards, these could from time to time be military commanders as well.[506] Grainger therefore concludes, arguing vehemently against the idea of independent villages, that: "the theory that villages in the Roman East had an elaborate system of self-government cannot be sustained on the evidence of these inscriptions. It should be discarded."[507]

Concerning the size of the cities, as mentioned above, the major cities of the region, Bostra, Gerasa, Abila, Caesarea Paneas and Scythopolis, were significant cities, between 75 and 100 hectares, as was Philippopolis later in the century. Nor were Adraha and Dionysias particularly small, measuring around 40 hectares each. And while the durability of the basalt building materials and limited later habitation resulted in the survival of significant archaeological remains of villages and small settlements, comparable to the Dead Cities in Syria, it would appear that a densely occupied city hinterland was common around other Levantine cities as well. So, while the landscape was indeed filled with villages, it still fitted within the framework of an urban system.

Nonetheless, Jones is right that north of the Hippos-Dionysias line, east of the Golan and Mount Hermon, no cities are found up to Damascus. And while a lack of urbanism makes sense on the basaltic lava fields of the Trachonitis, it makes less sense on the Jedur plains, thus leaving about 2.500 km^2 of arable land up to Damascus' western Ghouta without cities. In addition, hardly any remains of smaller settlements have been recovered either, compared to the Leja and the hills of the Jebel Hauran. It must be pointed out that at no point within this area the closest city was further away than 45 km, and it is in these furthest locations, on the edge of the Trachonitis, that the larger villages such as Aere, Phaena and Aenos are located, which later appeared in the bishop lists. In several of these villages surrounding the Trachonitis, inscriptions from the late second (Phaina) to the early fourth centuries (Saura) have been found, identifying them as

[504] Moors, 'De Decapolis', 264–69.
[505] Moors, 501–4.
[506] John D. Grainger, '"Village Government" in Roman Syria and Arabia', *Levant* 27, no. 1 (1 January 1995): 187–94.
[507] Grainger, 192–93.

μητροκωμίαι.[508] There has been significant debate about the meaning of the term and the status of these villages. Where κώμη means village, μητροκωμία, or 'mother-village' appears to be somewhat analogous to metropolis - as mentioned before, not an unproblematic term by itself - but at the very least suggesting some form of elevated status. For Jones, it appears to mean little more than important village, but this interpretation reflects his theory of a village landscape. Moors discusses whether the title is merely honorary, or if it more closely follows McAdams' view that μητροκωμίαι were an intermediary stage of settlement between village and city. With no indications in nearby villages concerning a dependent or independent status, Moors leaves this question open, but clearly favours an interpretation of μητροκωμίαι as centres of rural districts.[509] Grainger is more hesitant about assigning a function to these places, and, like Moors, emphasizes that none of the μητροκωμίαι were ever elevated to any kind of official urban status. For him, they appear to be a Roman solution for failing to urbanise the region, serving an unknown (but likely tax- or security-related) administrative purpose that would otherwise have been performed by cities.[510]

Sartre offers an elegant solution for both the lack of cities in Batanea and the function of the μητροκωμίαι. An inscription found in 1997 in Aere (as-Sanamēn) mentions an imperial domain in Batanea. Sartre therefore suggests that like in some other regions formerly under Hasmonean control, these villages were the administrative centres of imperial estates.[511] Moors, writing several years before this inscription was found, rightly states that other examples of estates or domains are very limited, but the inscription from Aere is explicit enough to counter the idea that there hardly were any estates in the region.[512] It is, however, dated to the fourth century, and the μητροκωμία inscriptions also date mostly from the third century onwards, suggesting that the domains date to a later period than studied here. Sartre argues that it is likely that at in the case of Aere there already was a domain in the third century, as it appears that an imperial procurator was already present.[513] The existence of an estate is attested in the bishops lists as well, mentioned by Georgius.[514] If this area had been imperial property, it could explain why no cities developed within the region.

[508] Sartre, 'Les Metrokomiai de Syrie Du Sud', 216.
[509] Moors, 'De Decapolis', 20–27.
[510] Grainger, '"Village Government" in Roman Syria and Arabia', 182.
[511] Sartre, 'Les Metrokomiai de Syrie Du Sud'.
[512] Moors, 'De Decapolis', 27–28.
[513] Sartre, 'Les Metrokomiai de Syrie Du Sud', 220.
[514] Jones, *The Cities of the Eastern Roman Provinces*, 290–91.

Within the Hauran, over three hundred rural settlements have been recorded, and as El-Khouri indicates, at least that many around the four Decapolitan cities in northwest Jordan.[515] So far, much still relies on the extensive regional campaigns by H.C. Butler at the beginning of the twentieth century and Nelson Glueck in the 1930s and 40s, who recorded much that has since been lost.[516] Our knowledge has, however, been significantly improved upon by the French Ifpo mission in southern Syria from the 1970s to 2011. Despite the high quality of the French publications, their overview of settlements in the Hauran is somewhat imperfect, both in current as well as earlier volumes. It is not entirely clear whether the places shown on their maps are modern or ancient settlements or a combination thereof, as only modern toponyms are given, also for currently uninhabited sites like Saḥr. Only about 80 places are shown, falling far short of the 300 settlements mentioned by Villeneuve. That can be explained, as Villeneuve writes, by the fact that only settlements that were at least small villages are shown on the maps; however, without a clear specification of what kind of settlement or archaeological site qualifies as 'a small village'.[517] This could mean that around 200 of the 'settlements' should be classified as hamlets and single farms, but this is obviously only speculation. While large villages are mentioned as an example in the text, only a few are mentioned by name, together with the μητροκομιαι as a further unspecified group of large villages, without some indication of their relative importance on the maps. Sartre's discussion of the settlements on the basis of inscriptions is somewhat enlightening, and helps to confirm the existence of a Roman settlement at the majority of the sites indicated on the main maps, but he also indicates that many settlements produced no epigraphic evidence at all.[518]

For the majority of these sites, it can be stated at best that they were very small, ranging from field huts and single farms to small villages. If any standing remains are present, these are mostly limited to cisterns, presses and tombs, with few residential remains still present.[519] For twenty-four villages in the Hauran we have some indications that they had a more central function, or were of a relatively large size. In at least five cases there is a relatively clear indication of their size (Sharah 17 ha, Emmatha 6.4 ha, Saḥr 11,9 ha, Umm el-Jimal 13 ha and

[515] Jean-Marie Dentzer, *Hauran I : Recherches archéologiques sur la Syrie du Sud à l'époque hellénistique et romaine*, Bibliothèque archéologique et historique 124 (Paris: Institut Français d'Archéologie du Proche Orient, 1985); Ball, *Rome in the East*, 238; Lamia el-Khouri, 'The Roman Countryside in North-West Jordan (63 BC–AD 324)', *Levant* 40, no. 1 (1 April 2008): 71–87, https://doi.org/10.1179/175638008x284189.
[516] Howard Crosby Butler, *Southern Syria*, Syria : Publications of the Princeton University Archaeological Expeditions to Syria in 1904-1905. Division II, Ancient Architecture in Syria ; Section A (Leyden: Brill, 1907).
[517] François Villeneuve, 'L'économie rurale et la vie de campagne dans le Hauran antique (I siècle avant J.-C. - VI siècle après J.-C.)', in *Hauran I : recherches archéologiques sur la Syrie du Sud à l'époque hellénistique et romaine*, ed. Jean-Marie Dentzer, Bibliothèque archéologique et historique 124 (Paris: Institut Français d'Archéologie du Proche Orient, 1985), 76.
[518] Dentzer, *Hauran I*, 191.
[519] el-Khouri, 'The Roman Countryside in North-West Jordan (63 BC–AD 324)', 80, 84.

Philippopolis 10 ha).[520] Both the largest of these, Sharah, and the smallest, Emmatha, come close to be characterised as urban in more than one respect: besides surpassing the smallest cities proper of the Decapolis in size, Sharah also had city walls from the first century onwards, baths, and two temples and possibly a Mithraeum.[521] Also, as in neighbouring Phaine, a military presence is attested at Sharah from the second century. On the other hand, Emmatha, known for its baths that existed from at least the third century onwards and were apparently frequented by Talmudic sages from Tiberias, clearly fell within the territory of Gadara and was usually referred to as the Baths of Gadara. It also seems to have been described as a place where many came to trade from the second century onwards.[522] While only about 6.4 ha in size, it was still not that much smaller than nearby Hippos, Capitolias and Pella (at 10, 20 and 25 km distance). Furthermore, its baths, colonnaded street and small theatre or odeion gave it rather city-like features.

Table 7 Secondary settlements

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	Status buildings	*Grand Total*
Sharah	1				1	3		*5*
Emmatha	2	1		1		1		*5*
Philippopolis	1	1	1					*3*
Seia				1		2		*3*
Saura				1		1		*2*
Sakkaia				1		1		*2*
Athela						2		*2*
Phaine						1		*1*
Aere						1		*1*
Borechath Sabaon						1		*1*
Grand Total	**4**	**2**	**1**	**4**	**1**	**13**	**0**	***25***

[520] Mikaël Kalos, 'Un sanctuaire de Mithra inédit en Syrie du sud', *Topoi* 11, no. 1 (2001): 230, https://doi.org/10.3406/topoi.2001.1935; Vries and Betlyon, *Umm El-Jimal*, [map]; Mikaël Kalos, 'Le site de Saḥr (Syrie du Sud)', *Topoi* 7, no. 2 (1997): 186 figure 3, https://doi.org/10.3406/topoi.1997.1757; Yizhar Hirschfeld, 'The History and Town-Plan of Ancient Ḥammat Gādēr', *Zeitschrift Des Deutschen Palästina-Vereins (1953-)* 103 (1 January 1987): 108; Darrous and Rohmer, 'Chahba-Philippopolis (Hauran)', 10.
[521] Kalos, 'Un sanctuaire de Mithra inédit en Syrie du sud'.
[522] Hirschfeld, 'The History and Town-Plan of Ancient Ḥammat Gādēr', 103–4.

Of the other villages, at least 13 more have monumental remains, as indicated in Table 7. Most of these were temples, including the *kalybe* temples in Hayat, Umm az Zaytūn and Sakkaia.[523] In the cases of Saḥr, Seia, Saura and Sakkaia, small theatres were present as well. Considering their small sizes and connection to temples, these are generally identified as cult theatres.[524]

Seia and Saḥr are thought to have been sanctuaries rather than proper settlements, but we cannot rule out the possibility that these also functioned as market centres. In the case of Seia, a small agricultural settlement may have existed. However, in the case of Saḥr, Mikaël Kalos has argued that, given the lack of cultivable land, few traces of animal husbandry, no necropoleis, a difficult to access, isolated location and none of the buildings looking remotely like the houses typical for the region, this was most likely not a place of permanent residence. Even so, with its large cisterns, sizeable buildings and large open spaces that may have been used for tents, this could very well have functioned as a regional cult site.[525] It is also possible that villages with temples were wealthier, but not necessarily more central or larger than any of the other places attested in the region.

Like the cities of the Decapolis, the towns of this region were not evenly distributed, but appear clustered in two groups on the edges of the Jebel Hauran and the Leja respectively, with Emmatha, Umm el-Jimal and Arbela as outliers. It is impossible to say to what degree this reflects the reality of the Roman settlement pattern. For instance, the region between Philadelphia and Arbela, about 30 kilometres apart, was clearly not devoid of rural settlements, despite increased differences in elevation.[526] This would clearly still fit in an ideal landscape with market centres at no point more than 3 hours' walking distance, but in comparison, on an overall level the secondary settlements have a mean distance to the nearest neighbour of 12 km, and looking specifically at the two clusters, a mean distance of 6 km for the eastern cluster, and 9.2 km for the western one. If also taking Dionysias and Canatha into account, this mean distance was even lower in the case of the eastern cluster. At least from that perspective, some intermediate settlements seem likely in the south-western part of the region. When considering that Emmatha was only 3 km away from Gadara, and Arbela only 4 km from Capitolias, we can expect even denser distributions in some cases.[527]

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[523] Segal, 'The Kalybe Structures'; Pascale Clauss-Balty, 'La kalybé de Hayat (Syrie du Sud)', *Syria*, 2008, 249–92.
[524] Arthur fl 1978 Segal, *Temples and Sanctuaries in the Roman East : Religious Architecture in Syria, Iudaea/Palaestina and Provincia Arabia* (Oxford: Oxbow Books, 2013).
[525] Kalos, 'Le site de Saḥr (Syrie du Sud)', 972.
[526] Nelson Glueck, *Explorations in Eastern Palestine. [Vol.] 4.*, The Annual of the American Schools of Oriental Research ; Vol. 25-28 832452858 (New Haven: American Schools of Oriental Research, 1951); el-Khouri, 'The Roman Countryside in North-West Jordan (63 BC–AD 324)'.
[527] See in comparison Bintliff, 'Going to Market in Antiquity', 245–46 for a typical 2-3 km distance between villages.

While we also lack indications for larger settlements between Bostra and Adraha, it is already clear on the basis of epigraphic evidence alone, that the Nuqra was certainly not devoid of settlements, with at least around twenty sites with inscriptions.[528] It is impossible to determine which, if any, of these sites were large or had a more central role. One such place might be Jizeh, from whose vicinity several canals ran towards other villages and was one of the places showing evidence of irrigation[529], or at-Tayyibe, where a bridge may have been located on the route from Bostra to Adraha.

Perhaps the larger villages should be seen in a form of competition with the cities of the Decapolis, rather than complementary to them. In the cases of the larger cities of Bostra, Gerasa and Abila, fewer to no large villages crowd their surroundings, while smaller Canatha and Dionysias lie in the middle of the dense eastern cluster. But, as discussed above in the distribution of cities, and as visible in Figure 26, the best explanation for the clusters of larger villages is based on the accessibility of water to support larger communities, and the level of rainfall for farming activities. Thus the villages close to the Jebel al Arab had the benefit of its perennial springs and meltwater, while the twenty or so new Roman villages in the Nuqra plains between Bostra and Adraha seem to have been dependent on wadi floodwater diversion through canals up to twenty kilometres away, when not lying directly along the wadis themselves.[530] This also offers additional insight into the centrality of some places, with a village like 'Aqrabah playing a central role in the distribution of water, while several sites at 3 to 7 km away were dependent on its water storage.[531] In other words, in this region we find that access to water played a far stronger role in settlement location than factors such as market function.

2.3.5 Conclusion

The cities of the Decapolis stand out in comparison to those of Palaestina, and not just in their use of basalt for construction. In the first place, their building profile is better known for the Roman period, both in larger and smaller cities. A regional preference for water display buildings is apparent, while the shape of nymphaea was mirrored in other architecture as well. Furthermore,

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[528] Dentzer, *Hauran I*, 191.

[529] Frank Braemer, 'Prospections Archéologiques Dans Le Hawran. [II. Les Réseaux de l'eau]', *Syria* 65, no. 1 (1988): 108, https://doi.org/10.3406/syria.1988.7101; Frank Braemer, Gourguen Davtian, and Pascale Clauss-Balty, 'L'habitat Rural En Syrie Du Sud: Quels Contextes Territoriaux?', in *Hauran III : Habitat Dans Les Campagnes de La Syrie Du Sud Aux Époques Classique et Médiévale*, ed. Pascale Clauss-Balty and Jean-Marie Dentzer, Bibliothèque Archéologique et Historique 181 (Institut Français du Proche Orient, 2008), 10, https://halshs.archives-ouvertes.fr/halshs-00268968.

[530] Frank Braemer et al., 'Conquest of New Lands and Water Systems in the Western Fertile Crescent (Central and Southern Syria)', *Water History* 2, no. 2 (1 October 2010): 107, https://doi.org/10.1007/s12685-010-0029-9.

[531] Braemer, Davtian, and Clauss-Balty, 'L'habitat Rural En Syrie Du Sud'.

the majority of the Decapolitan cities was fortified, and by the beginning of the fourth century nearly all of them were walled.

Some characteristics were shared with other cities of the Roman Near East. Temples, baths, colonnaded streets and theatres were omnipresent, and larger cities had a hippodrome as well. In a few cities, the presence of a tetrapylon and tetrakionion gave them a distinctly eastern character. Public squares were less common than among cities in the Western Empire, and examples like the oval plaza in Gerasa are quite different from the fora and agorai common elsewhere.

Most notable for the region, however, is the way in which the distribution of cities and villages was strictly determined by the available water resources, with the population clustered where agricultural land and drinking water were available. It is all the more surprising to see that this resulted in a number of relatively large cities and wealthy villages. However, that the area northwest of the Trachonitis was governed from villages rather than cities, may have been caused by the presence of imperial estates in that region, rather than a lack of water resources.

The historical and political development of the region also differs from what we see in Palaestina and in the northern Syrian provinces. Most settlements are relatively young, Late Hellenistic foundations. There is no organisation in toparchies as seen in Syria Palaestina to explain the small settlements and territories. Rather, it is the initial clustering of the cities that precludes the development of large urban territories as seen in the north.

2.4 Southern Arabia

2.4.1 Introduction

In 106 C.E. the Roman Empire annexed the kingdom of the Nabataeans (Figure 28). Shortly after, the Via Nova Traiana was constructed, starting in Bostra, and continuing south past Philadelphia over the plateaux of the Jordanian highlands, to finally run past Petra to the port of Aila, on the coast of the Red Sea. The road, following the older Nabataean highway (which itself shows an Iron Age II predecessor),[532] cut through a diverse landscape, including the dark volcanic environs of the Hauran, via the Mediterranean plateaux of Moab and the dry and inhospitable deserts of the Ḥismā and ʿAraba around Aila.[533]

This highway only crossed a limited part of the Arabian province. It is quite likely that the new province encompassed the entirety of the old Nabataean kingdom. West of the capital of Petra, this covered the deserts of the Negev and the Sinai, while to the south the lands of the Nabataeans stretched far into the Ḥismā at least as far as Hegra. In fact, using Nabataean pottery found further into the south of the Arabian Peninsula, on the island of Farasan – which also shows inscriptions indicating the construction of a Roman base – and on the Arabian coast opposing it, Speidel has argued that Nabataean influence stretched this far along the Red Sea coast.[534] Nonetheless, by their very nature desert borders are unclear, and even with a Roman presence that far south, the level of Nabataean influence in the Arabian Peninsula can be questioned. Furthermore, the focus of this thesis lies with the cities of the east. With Hegra as the final city under Roman control, the wider region of the Arabian Peninsula will not be treated here.

The following section will describe the regional organisation and cities of the southern parts of the Arabian province. As becomes quickly evident from Figure 28, compared to the Decapolis in the north of the province, the number of places that in the Severan era certainly were considered cities, following Jones' classification (coinage, official status, urban institutions, and presence in Pliny or the earliest lists of bishoprics), are limited to a handful, mostly along the Via Nova Traiana. The likely candidates Elusa and Hegra lie in the Ḥijāz and Negev respectively, and the potential cities of Rhinocolura, Ostrakine, Kasion and Gerra lie in the northern Sinai along the coastal road from Raphia in Judea to Pelusium in Egypt. As such, the description of the region

[532] Fawzi Abudanah et al., 'The Legend of the "King's Highway": The Archaeological Evidence', *Zeitschrift Für Orient-Archäologie* 8 (2015): 183–84.
[533] Glen Warren Bowersock, *Roman Arabia* (Harvard University Press, 1994), 83.
[534] Speidel, 'Ausserhalb des Reiches? Zu neuen lateinischen Inschriften aus Saudi-Arabien und zur Ausdehnung der römischen Herrschaft am Roten Meer', 647–49.

here will at first follow the Via Nova Traiana southwards to Petra, and then describe the settlements in the Negev and Sinai to the west and in the deserts south of Petra.

2.4.2 The lands of Moab: The Madaba plain (Northern Moab) and Kerak plateau (Central and Southern Moab)

South of Gerasa and Philadelphia, the limestone plateaux of the Jordanian highlands continue along the eastern side of the Dead Sea, cut through by wadis emptying into the Rift Valley. Climatically similar to the area around Philadelphia, they are somewhat drier but still among the best-watered lands beyond the Jordan. Springs are mostly limited to the wadi valleys. The red and yellow Mediterranean soils of the plateaux lack the fertility of the volcanic soils of the Hauran and are relatively shallow, but still allow for a reasonable agricultural yield.[535] The region, also known as Moab in ancient sources, has a long history, and its settlements are mentioned in Egyptian sources and the Bible.[536]

In the Madaba plain, between Wadi Hesban and Wadi Mujib, the main settlements throughout the Roman period were Madaba and Esbus. Madaba so far shows a history of urbanism going back over 5000 years on its 16-hectare tell. Nowadays it is especially known for the Byzantine mosaics excavated in the basilica of St. George, which show a map of the major settlements in the region. Despite the literary references to the city, and it having its own coinage, the Roman city itself is not especially well known. There are inscriptions showing the presence of the Legio III Cyrenaica, a possible Roman temple, and remains of the colonnaded main street.[537] Esbus seems to have been a rather small place, on a tell of about 6 hectares, and Mitchel describes it as a small to medium village of maybe only 2 hectares at the beginning of the second century (stratum 13).[538] By the end of the second century (stratum 12) it grew beyond the size of the tell, with probes indicating some activity at 80 m and 300 m to the southeast and southwest.[539] In this

[535] J. Maxwell Miller and Jack M. Pinkerton, *Archaeological Survey of the Kerak Plateau*, Archaeological Reports / American Schools of Oriental Research ; No. 1 (Atlanta, Ga: Scholars Press, 1991), 3.
[536] 2 Kings 3; Gen. 19:30-38; Udo Worschech, 'Egypt and Moab', *The Biblical Archaeologist* 60, no. 4 (1997): 229–36, https://doi.org/10.2307/3210625.
[537] Timothy P Harrison, Debra Foran, and Andrew Graham, 'Investigating 5,000 Years of Urban History: The Tall Madaba Archaeological Project', in *Crossing Jordan: North American Contributions to the Archaeology of Jordan*, 2007, 143; Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 992–1001.
[538] Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 626; Larry A. Mitchel, *Hellenistic and Roman Strata : A Study of the Stratigraphy of Tell Hesban from the 2nd Century B.C. to the 4th Century A.D*, Hesban ; 7 063164825 (Berrien Springs, Mich: Andrews University Press/Institute of Archaeology, 1992), 145.
[539] Larry A. Mitchel, 'The Hellenistic and Roman Periods at Tell Hesban, Jordan' (1980), 155–56, http://digitalcommons.andrews.edu/dissertations/96.

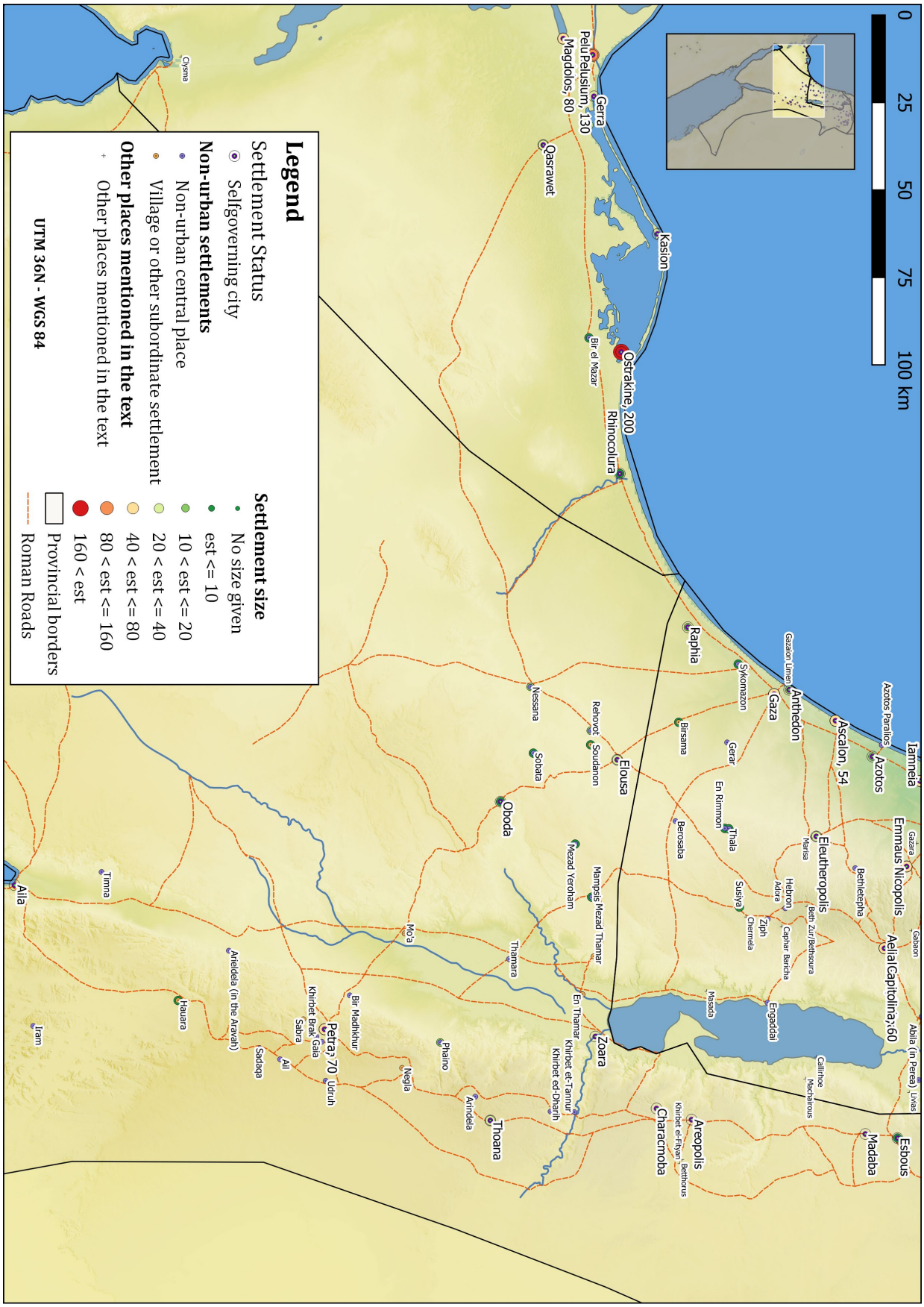

Figure 28 Settlements in southern Arabia

period it seems that a temple and an inn were built in the settlement, and that a fort was

constructed.[540]

The Kerak plateau is the next large plateau towards the south, between the Wadi Mujib and the Wadi el-Ḥasa, and climatically similar. Sources for the cities of Rabbathmoba (er-Rabbah), also known as Areopolis in the second century, and Charachmoba (Kerak) on the Kerak Plateau are limited. Seal impressions from the reign of Hadrian belonging to these cities, which were found at Mampsis in the Negev, suggest these were places of significance.[541] Areopolis also appears as a *caput viae* on the Via Nova Traiana.[542] Similarly, in the same period the city of Rabbathmoba was mentioned in the Babatha archive, stating that Babatha had to declare her property to a Roman commander based there. The archives of this woman, from a family that had migrated from En Gedi to Maoza, contain information on her family, property and correspondence with various authorities. Given that the final documents date to 132 C.E. and they were found in a cave in the Judean desert, it is likely she fled to Judea at the onset of the Bar Kokhba revolt.[543] An extract from the council meetings of Petra in the archive interestingly reveals that, although the village of Maoza was closer to Rabbathmoba, it was the boule of Petra who had jurisdiction in the case of the inheritance of Babatha's late husband's goods, and that it appointed two guardians for her son.[544] Secondly, Isaac notes that the town of Zoara, lying closer to Maoza, apparently did not have any Roman officials. Furthermore, from a number of summons and counter-summons it appears that Rabbathmoba and Petra served as *conventus* centres, with Rabbathmoba normally serving as the normal assize centre for matters relating to the village, but with the governor more commonly present in Petra.[545] Coinage in both cities started rather late, under Septimius and Elegabalus.[546]

While the remains of Roman Charachmoba are practically unknown, for Rabbathmoba (Areopolis) the situation is somewhat better.[547] A temple or public building from the time of Diocletian remains, parts of a colonnaded street and three large reservoirs, a building inscription dedicated to Lucius Verus, and a later Byzantine building, probably a church.[548] The material of

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[540] Mitchel, 145–50.
[541] Miller and Pinkerton, *Archaeological Survey of the Kerak Plateau*, 12–13.
[542] Jacqueline Calzini Gysens, 'Interim Report on the Rabbathmoab and Qaṣr Rabbah Project', *East and West* 58, no. 1/4 (2008): 60.
[543] Youval Rotman, 'Babatha', in *The Encyclopedia of Ancient History* (John Wiley & Sons, Inc., 2013); Miller and Pinkerton, *Archaeological Survey of the Kerak Plateau*, 12; Glen Warren Bowersock, *Studies on the Eastern Roman Empire: Social, Economic and Administrative History, Religion, Historiography*, Bibliotheca Eruditorum 9 (Goldbach: Keip, 1994), 87–89.
[544] Benjamin Isaac, 'The Babatha Archive: A Review Article', ed. N. Lewis, Y. Yadin, and J.C. Greenfield, *Israel Exploration Journal* 42, no. 1/2 (1992): 63–64; *P. Yadin 1 12*, n.d.
[545] Haensch, *Capita provinciarum*, 243; Hannah Cotton and Werner Eck, 'Roman Officials in Judaea and Arabia and Civil Jurisdiction', in *Law in the Documents of the Judaean Desert*, ed. Ranon Katzoff and David Schaps (Leiden: Brill, 2005), 37–41.
[546] Jones, 'The Cities of the Roman Empire', 294; Kennedy, *The Roman Army in Jordan*, 153.
[547] Miller and Pinkerton, *Archaeological Survey of the Kerak Plateau*, 89.
[548] Miller and Pinkerton, 66; Gysens, 'Interim Report on the Rabbathmoab and Qaṣr Rabbah Project', 64.

the city walls, which were still standing at the beginning of the twentieth century and drawn on Alois Musil's sketch of the city, appear to have been reused completely in the modern town. No indication is given as to their possible age, and they could date to a later period. One additional feature of the town, based on aerial photography, is the suggestion of a Roman or Byzantine military encampment southeast of the city.[549]

The town of Zoara lay to the southwest of the plateau, at the end of the Wadi el-Ḥasa and near the coast of the Dead Sea, essentially the northern end of the Wadi ʿAraba. Despite lack of rain and relative salinity of the soil, the water from the Wadi el-Ḥasa nonetheless allowed the area to be a productive agricultural region, and the Babatha archives attest to date palm production. While the area was surveyed by MacDonald in the Southern Ghor Survey, Zoara itself has not been well studied. Even its exact location is unclear, with one of the potential sites to be identified with the city (Khirbet Sheikh ʿIsa) having been bulldozed.[550]

South of the Kerak plateau, across the Wadi el-Ḥasa, the terrain becomes somewhat less hospitable, with more pronounced mountainous features. The area is described by Kennedy as the highlands of Ma'an or Al-Jibal, but falls within the modern Tafilah governorate, and the mountains continue south as the Jabal ash-Sharāh. The region is known in the Old Testament as Edom, with Bozrah as its capital. In the Roman period Thoana (Thornia on the Peutinger Table, modern At-Tuwana) was a sizeable settlement in this area, measuring up to 36 hectares, along the Via Nova Traiana. A structure with an almost 1.5 ha enclosure is suggested to have functioned as an inn.[551] Ariendela (at Gharandal), just under 8 km to the southwest along the older King's Highway, may have had a similar inn, but as a settlement only seems to have grown in the Late Roman or Byzantine period.[552] Interestingly, the fact that Ariendela is present on the bishoprics lists suggest that it had superseded Thoana in importance by that time.[553]

On the north side of Al-Jibal, closer to the Wadi el-Ḥasa, the area also hosts two other places of interest, the remote Nabataean sanctuaries of Khirbet edh-Dharih and Khirbet et-Tannur, the

[549] Gysens, 'Interim Report on the Rabbathmoab and Qaṣr Rabbah Project', 64, 70, 71.
[550] Burton Macdonald, Geoffrey A. Clark, and Michael Neeley, 'Southern Ghors and Northeast ʿAraba Archaeological Survey 1985 and 1986, Jordan: A Preliminary Report', *Bulletin of the American Schools of Oriental Research*, no. 272 (1988): 39–40, https://doi.org/10.2307/1356784.
[551] Kennedy, *The Roman Army in Jordan*, 168; Zbigniew T. Fiema, 'At-Tuwana: The Development and Decline of a Classical Town in Southern Jordan (with a Note on the Site Preservation)', in *Landscape Resources and Human Occupation in Jordan throughout the Ages*, Studies in the History and Archaeology of Jordan 6, 1997, 313–16.
[552] Alan G. Walmsley and Anthony D. Grey, 'An Interim Report on the Pottery from Gharandal (Arindela), Jordan', *Levant* 33, no. 1 (1 January 2001): 139–64, https://doi.org/10.1179/lev.2001.33.1.139.
[553] A. H. M. Jones, *The Later Roman Empire, 284-602: A Social Economic and Administrative Survey* (Oxford: Blackwell, 1964), 547.

latter at the location of a former Iron Age settlement.[554] While neither appear to have become major foci of settlement (with only a small village growing around Khirbet edh-Dharih, at the beginning of the second century), they are likely to have been important points in the religious landscape.[555]

To the southwest of this plateau, on the edge of the Wadi ʿAraba, lay the well-known copper and lead mining district in the Wadi Faynan, where mining can be traced back to the Early Bronze Age. This was a major mining area in the Roman period as well. The main settlement, Khirbet Faynan, Phaino in antiquity, was occupied from around 300 B.C.E. to 650 C.E..To its west, across the wadi bed, lay a large field system extending over 5 km, that has been interpreted as the agricultural estate of the workers and garrison living in Phaino. While under the Nabataeans a large number of separate farmsteads lay along the wadi bed using simple runoff techniques and short channels to water the lands, under imperial control the entire wadi floor was covered by a single estate. Floodwaters were distributed between fields by means of well-built channels with sluices and slipways controlling flow. Barker notes that Roman mining activity coincided with considerable increased pollution as well, and that Roman activity may have been a major cause in the desertification of the area.[556] Timna, another mining site, located to the southwest of the Wadi ʿAraba, was used well into the Iron Age and reused in Islamic times. But while Roman mines were dug, the near absence of slag from that period suggests that mining attempts were unsuccessful at this time.[557] The proximity of the Faynan mining estate may have influenced the prosperity of the nearby settlements on the plateau, and perhaps was related to the success of closer Ariendela over that of Thoana.

2.4.2.1 Hinterland and regional patterns

In the Madaba plain, besides the two main places treated above, some additional information on the smaller settlements in the surrounding countryside is available from the regional survey of the Andrews University Hesban Expedition, now continued as a part of the Madaba Plains

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[554] François Villeneuve, 'Citadins, villageois, nomades : le cas de la Provincia Arabia (IIe-IVe s. ap. J.C.)', *Dialogues d'histoire ancienne* 15, no. 1 (1989): 119–40, https://doi.org/10.3406/dha.1989.1832.
[555] Megan A. Perry, Drew Coleman, and Nathalie Delhopital, 'Mobility and Exile at 2nd Century A.D. Khirbet Edh-Dharih: Strontium Isotope Analysis of Human Migration in Western Jordan', *Geoarchaeology* 23, no. 4 (1 July 2008): 528–49, https://doi.org/10.1002/gea.20230.
[556] G. W. Barker et al., 'Archaeology and Desertification in the Wadi Faynan: The Fourth (1999) Season of the Wadi Faynan Landscape Survey', *Levant* 32, no. 1 (1 January 2000): 28, https://doi.org/10.1179/lev.2000.32.1.27; G. Barker, 'The Desert and the Sown: Nomad–Farmer Interactions in the Wadi Faynan, Southern Jordan', *Journal of Arid Environments*, Ancient Agriculture in the Middle East, 86 (November 2012): 91–93, https://doi.org/10.1016/j.jaridenv.2011.11.023.
[557] Gerd Weisgerber, 'The Mineral Wealth of Ancient Arabia and Its Use I: Copper Mining and Smelting at Feinan and Timna – Comparison and Evaluation of Techniques, Production, and Strategies', *Arabian Archaeology and Epigraphy* 17, no. 1 (1 May 2006): 22, 24, https://doi.org/10.1111/j.1600-0471.2006.00253.x; Hagit Nol, 'The Fertile Desert: Agriculture and Copper Industry in Early Islamic Arava (Arabah)', *Palestine Exploration Quarterly* 147, no. 1 (1 March 2015): 53, https://doi.org/10.1179/1743130114Y.0000000012.

Project. The survey gives an initial overview of the settlements in the surroundings of Esbus and Madaba, in a radius of 10 km from Tell Hesban. As Israel Finkelstein's rather critical review already indicated in 1992, the report from 1987 has several shortcomings, hampering the possibility to reliably recreate the settlement system.[558] Even so, while Finkelstein is right that their size indications are only very general ('very small' to 'major'), the authors do state for the large sites that these fall between 10 to 20 acres (4 to 8 hectares), the largest of which is Tell Jalul (at 7 ha, abandoned by the Roman period).[559] The major sites are essentially Madaba and Esbus.[560] More problematic is that no indication is given as to sherd numbers, nor the number of diagnostic sherds from a specific period, although it was indicated when only a 'few' or 'a single' diagnostic sherd was found at the site. In total, a steep increase from 21 Hellenistic to 57 Early Roman sites can be seen, declining to 45 sites in the Late Roman period (meaning from 130 C.E. to 365 C.E. in Ibach and Labianca), to increase again to 126 in the Byzantine period (here meaning 365 C.E. to 661 C.E.).[561] Discarding the 'few sherds' or 'single sherd' sites reduces the early Roman period to 44 sites, and the later Roman period to 41.[562] Besides Esbus and Madaba, of these five were large or major sites in the Hellenistic period, increasing to eight in the early Roman period, and to nine in the Late Roman and Byzantine periods. While a larger concentration of sites was found in the northwest, the larger sites appear to have been located to the east of Esbus. New surveys from the later 1990s based on random plots suggest that the settlement density probably was highest in the plains towards the southwest – contrary to the original findings – but that due to the nature of the terrain more surface remains survived in the north-western section, as this area was less suitable for agriculture.[563]

On the Kerak plateau the main survey is that by Miller and Pinkerton between 1978 and 1982. While informative, it only gives a limited insight into the smaller settlements on the plateau, as only in some cases site are sizes given, and besides the two main sites, the relative importance of the others throughout time is not highlighted. At the very least the presence of Tharias and Aia on the Madaba map, suggested to be Tarʿīn (site 292) and ʿAi (site 262), may mean that these

[558] Robert D. Ibach and Øystein Sakala LaBianca, *Archaeological Survey of the Hesban Region: Catalogue of Sites and Characterization of Periods*, Hesban 5 (Berrien Springs Michigan: Andrews University Press, 1987); Øystein Sakala LaBianca, *Sedentarization and Nomadization: Food System Cycles at Hesban and Vicinity in Transjordan*, Hesban ; 1 063164825 (Berrien Springs MI: Andrews University Press, 1990); Israel Finkelstein, 'From Sherds to History: Review Article', *Israel Exploration Journal* 48, no. 1/2 (1998): 122–23.
[559] Constance E Gane et al., 'Madaba Plains Project: Tall Jalul 2009', *Andrews University Seminary Studies* 84, no. 2 (2010): 165.
[560] Ibach and LaBianca, *Archaeological Survey of the Hesban Region*, 170, 181.
[561] Note that the figures represented in the review by Finkelstein do not seem to correspond very well to that in the publications he reviews: Finkelstein, 'From Sherds to History', 124.
[562] Ibach and LaBianca, *Archaeological Survey of the Hesban Region*, 170–81.
[563] Gary L Christopherson, 'A Regional Approach to Archaeology on the Madaba Plains: Random Survey and Settlement Patterns', in *Web-Published Conference Paper, Annual Meetings of the American Schools of Oriental Research*, 1997.

places were of some significance. The overall trends are clear, however: there is a sharp increase in settlement throughout the Nabataean period, with 290 sites (170 if only counting those with five or more sherds for that period), declining to 143 early Roman (39 with 5+ sherds), down to 115 (or 30 with 5+ sherds) Late Roman sites, increasing again in the Byzantine period.[564]

The Dana Archaeological Survey studied the area from the southern Tafila almost down to Udruh, including parts of the Wadi ʿAraba in the west. Contrary to the surveys to the north, one main conclusion was that of a very strong continuity in settlement in the region. As Findlater indicates in his discussion of the project, most older surveys failed to account for the longer use of classic Nabataean forms of pottery up to as far as the 5th century C.E. This could mean that the high number of Nabataean sites in the other surveys was exaggerated while understating the Roman period, suggesting that continuity may have been far higher between the periods there as well.[565] As elsewhere, Findlater emphasizes that the Late Roman establishment of military forts along the desert route followed existing Nabataean patterns, and more importantly, that their location was dictated by the presence of imperial estates and the proximity of mineral resources in the Wadi ʿAraba. He postulates that part of the plains south of the Jibal formed such an estate.[566] With this, he goes against the general ideas held about the nature of the military presence in Jordan, either a more traditional idea of defence against invasion (nomadic or otherwise), or internal policing and securing long-distance trade routes.[567] While his ideas certainly merit further investigation, the initial expansion of the military presence in Arabia during up to and including the Severans does seem to match better with Fiema's idea of enhancing the security or taxation of trade routes, with troops stationed at Hegra covering the Ḥijāz route, and with the Severan fortresses at the Azraq oasis covering the route from Bostra through the Wadi Sirhan.[568]

2.4.3 Petra

Petra was the political and religious heart of the Nabataean kingdom. It was situated in a basin surrounded by sandstone mountains, along the bed of the Wadi Musa, which flows down from the east out of the Jabal ash-Sharāh. Well provided with water and well-protected, it also lay at a natural location to turn west towards the Mediterranean across the mountains and the Wadi ʿAraba.

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564 Miller and Pinkerton, *Archaeological Survey of the Kerak Plateau*, 13.
565 George MacRae Findlater, 'Imperial Control in Roman and Byzantine Arabia : A Landscape Interpretation of Archaeological Evidence in Southern Jordan', 9 July 2004, 232, https://www.era.lib.ed.ac.uk/handle/1842/9789.
566 Findlater, 269.
567 Findlater, 270–79.
568 Zbigniew T. Fiema, 'Roman Petra (AD 106–363): A Neglected Subject', *Zeitschrift Des Deutschen Palästina-Vereins* 119, no. 1 (2003): 38–58.

While many of the famous rock-cut façades of Petra date to the first centuries B.C.E. and C.E., there is evidence for Nabataean occupation in the 4th century B.C.E., both along the bed of the Wadi Musa as well as closer to Umm al-Biyara.[569] Like most settlement locations in Arabia it had been inhabited before, but there appears to be a gap in habitation of at least a century between the preceding Iron Age settlement on the heights of Umm al-Biyara and the early Hellenistic settlement.[570] As Piotr Bienkowski highlights, however, there is an interesting element of continuity, since it appears that the older settlement in Busayra in the north may still have existed by the late third century B.C.E., making it contemporary to the early Nabataean habitation at Petra.[571]

Urbanisation of Petra took a rapid leap forward in the first century B.C.E., with the contemporary settlement of numerous sites throughout the southern Levant. Other than the monumental graves, this period also saw the building of the Great Temple, which may well have been a palace, and an elaborate system of water provision.

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	Status buildings	Grand Total
Petra	**5**	**2**	**3**	**2**	**1**	**2**	**1**	16
Hegra	**2**	**1**			**1**	**1**	**1**	6
Madaba	**2**	**1**			**1**	**1**		5
Elousa	**1**	**2**		**1**		**1**		5
Areopolis	**1**	**1**				**1**		3
Oboda						**2**		2
Aila		**2**						2
Esbous						**1**		1
Grand Total	11	9	3	3	3	9	2	40

[569] David F. Graf, 'Petra and the Nabataeans in the Early Hellenistic Period: The Literary and Archaeological Evidence', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 43–46.
[570] Piotr Bienkowski, 'The Iron Age in Petra and the Issue of Continuity with Nabataean Occupation', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 31.
[571] Bienkowski, 32.

Besides water from the spring of ʿAyn Musa, water from numerous other sources was diverted to the city. A large garden and pool complex show that it was used for a conspicuous display of power as well.[572]

As elsewhere, the impact of the Roman annexation is unclear. The city walls date to the period around the annexation, and may suggest that violence was anticipated. In any case they give a reasonable indication of the size of the settlement, enclosing around 70 hectares.[573] There are some signs throughout the city that may suggest some violence did take place, e.g. at the Obodas chapel, but on the whole, it seems that the city was not severely affected by the change of rule. Schmid suggests that the apparent lack of new rock-cut façades after the annexation, the going out of use of various *triclinia*, and the addition of the bouleuterion to the 'Great Temple' around the time of the annexation, are signs of Roman intervention. In his view the Roman government tried to limit Nabataean practices of feasting, as such associative structures were frowned upon in the empire.[574] This idea depends, however, on the somewhat tentative identification of the Great Temple as a palatial building, and specifically the area of the small theatre as that of a royal banqueting hall.

What is clear is that even though Bostra became the main seat for the governor, the city of Petra was granted the status of metropolis shortly after the annexation, continued minting its own coins, and acquired colonial status under Elegabalus. The older idea of supposed urban decline in the first century, as a result of shifting trade patterns, can no longer be maintained. For how long prosperity continued after Roman annexation is unclear. Especially for the third century literary sources are lacking.[575] Archaeologically, there are some signs of problems, such as the pool complex apparently having been abandoned and filled up by the late second or early third century.[576] It seems that the city suffered a significant blow in the fourth century, connected with the earthquake in 363 C.E.: as a Syriac letter attributed to Cyril, the bishop of Jerusalem, indicates, half the city lay in ruins.[577] Nonetheless, the later Byzantine churches and the Petra

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[572] Leigh-Ann Bedal, *The Petra Pool-Complex: A Hellenistic Paradeisos in the Nabataean Capital : (Results from the Petra 'Lower Market' Survey and Excavation, 1998)* (Gorgias Press LLC, 2004).
[573] Maria Giulia Amadasi Guzzo and Eugenia Equini Schneider, *Petra.* (Chicago, Ill.; London: University of Chicago Press, 2002), 108; Sebastian Hoffmann, 'Indications for "Early Petra" Based on Pottery Finds in the City Centre: El-Habis as a Case Study', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 93–106.
[574] Schmid, 'Petra and the Nabataeans in the Early Hellenistic Period'.
[575] Millar, 'The Roman Coloniae of the Near East: A Study of Cultural Relations', 39; Haensch, *Capita provinciarum*, 238–54; Fiema, 'Roman Petra (AD 106–363): A Neglected Subject', 39–43.
[576] Bedal, *The Petra Pool-Complex*.
[577] Russell, 'The Earthquake Chronology of Palestine and Northwest Arabia from the 2nd Through the Mid-8th Century A. D.'; Philip C. Hammond, 'New Evidence for the 4th-Century A. D. Destruction of Petra', *Bulletin of the American Schools of Oriental Research*, no. 238 (1980): 65–67, https://doi.org/10.2307/1356516.

Papyri clearly show that the city had not lost all its vitality and remained inhabited into the early Islamic period.[578]

The agricultural hinterland of Petra was relatively beneficial for agriculture, considering the limited amount of rainfall. Between the sandstone formations around Petra and the slopes of the Sharāh a number of springs and runoff from the high mountainsides created possibilities for cultivating the area. At higher altitudes on the Jabal ash-Sharāh itself, vulnerability to erosion and limited soils were offset by increased rainfall.[579] Intricate systems which collected rainwater from hillsides and wadi flows and diverted it onto fields are found throughout the greater Petra area, starting from the second to first centuries B.C.E., with more advanced forms of terracing of the hillsides beginning in the first century C.E..[580]

The settlements in the hinterland were studied in detail by Paula Kouki in 2012, bringing together data from the Wadi Musa Water Supply and Wastewater Project, the Bir Madhkur Project, the Finnish Jabal Harun Project, and the survey of the surroundings of Udruh by Fawzi Abudanah.[581] The surveys cover a limited part of the surroundings of Petra. While more projects have been undertaken in the region, some were not useable for Kouki's purposes because they lacked detail, or were not published at all, although the results from the landscape surveys undertaken by Brown University north of Petra have since then been published.[582] The general picture that emerges shows a significant expansion between 100 B.C.E. and 100 C.E., matching the growth of the city itself during that period. Initially the area only had a few settlements, mostly in the Jabal ash-Sharāh close to Petra, because it offers above average conditions in the region for agriculture. Most of the subsequent expansion of settlement took place east of Petra, towards Udruh and Sadaqa, and consisted mostly of small sites, with several larger villages. To

[578] Alex Knodell et al., 'The Brown University Petra Archaeological Project: Landscape Archaeology in the Northern Hinterland of Petra, Jordan', *American Journal of Archaeology* 121 (1 October 2017): 621, https://doi.org/10.3764/aja.121.4.0621.
[579] Laurent Tholbecq, 'The Hinterland of Petra (Jordan) and the Jabal Shara during the Nabataean, Roman and Byzantine Periods', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 295–96.
[580] Paula Kouki, 'The Intensification of Nabataean Agriculture in the Petra Region', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 324–26.
[581] Paula Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period' (Ph.D., University of Helsinki, 2012); Kouki, 'The Chronology of Ancient Agricultural Terraces', 323.
[582] Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 28; Knodell et al., 'The Brown University Petra Archaeological Project'.

the west, in the Wadi ʻAraba, only very small settlements or single farmsteads came into existence, directly along wadis for water catchment.[583]

By the third century, however, only a third of the 74 small settlement sites remained, but most of the village-sized sites remained intact (14 out of 16 earlier sites). In the direct vicinity of Petra, in the western Jabal ash-Sharāh, settlement remains more stable, but even there the decline is visible. In fact, Tholbecq mentions for the Jabal ash-Sharāh that the difference may be more pronounced, as pottery from the transition of the late first and early second centuries was dated to the 2nd through 4th century in general.[584] By the fourth century, many of the eastern settlements were reoccupied, increasingly so in the vicinity of Udruh, and there was some recovery in the western Jabal ash-Sharāh, but the settlement pattern west of Petra continued to decline. This included the larger settlements, with no evidence of habitation in for instance Sabra after the fourth century, nor at Abu Khushayba.[585] On the other hand, it has been attested that around the fort at Bir Madhkur agriculture was practiced (again) from the third century, including the cultivation of cereals.[586] The results from the surveys north of Petra more or less correspond to what happens in the eastern hinterland. These also suggest that the last century of Nabatean rule saw great intensification of settlement and land use. But this clearly continued up to the mid third century C.E., also with further construction and maintenance of agricultural terraces.[587]

As stated, of the larger settlements in the area, little is known archaeologically from the period under study. For Ayl and Sadaqa little information is available, other than the potential identification of a rectangular structure at Sadaqa as a Late Roman fort; Abundanh estimates the site size at 250 by 150 meters.[588] Gaia, probably the most important site in the region after Petra, is somewhat better known, with several excavated luxurious residences and at least one known

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583 Kouki, 'The Chronology of Ancient Agricultural Terraces', 323–25, 329–30; Laurent Tholbecq, 'The Hinterland of Petra (Jordan) and the Jabal Shara during the Nabataean, Roman and Byzantine Periods', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 296–97.
584 Tholbecq, 'The Hinterland of Petra (Jordan) and the Jabal Shara', 104–5; Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 84–90.
585 Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 84–90.
586 Jennifer Ramsay and Andrew M. Smith II, 'Desert Agriculture at Bir Madhkur: The First Archaeobotanical Evidence to Support the Timing and Scale of Agriculture during the Late Roman/Byzantine Period in the Hinterland of Petra', *Journal of Arid Environments* 99 (December 2013): 51–63, https://doi.org/10.1016/j.jaridenv.2013.09.005.
587 Knodell et al., 'The Brown University Petra Archaeological Project', 669.
588 Zeyad Al-Salameen, Saad Twaissi, and Fawzi Abudanah, 'Preliminary Report on the Archaeological Investigations of As-Sadaqa, Southern Jordan, 2007', *Annual of the Department of Antiquities of Jordan* 52 (2009): 397–416; Fawzi Abudanah, 'Settlement Patterns and Military Organisation in the Region of Udhruh (Southern Jordan) in the Roman and Byzantine Periods' (Ph.D., Newcastle, Newcastle University, 2006), 545, site 282, http://hdl.handle.net/10443/232.

temple, which was bulldozed in 1978.[589] For Udruh the later periods are somewhat better known, but the occupation throughout the Nabataean early Roman periods remains unclear.[590] At Sabra a small theatre and a temple from the early first century C.E. are known, as well as a bridge over the Wadi Sabra. Furthermore, there are some indications of copper mining and processing. Current investigations have also uncovered a bath and an inn. Sabra appears to have been a sizeable settlement, but no further estimate has been given as to its surface area.[591]

Kouki's interpretation is that this is not so much an overall demographic decline as a concentration into nucleated settlements. Inspired by Alcock's model for landownership and land-use in Greece, she suggests that this reflects a shift towards more concentrated ownership of land, beginning at the end of the second century at the latest. Secondly, a reorientation of the local economy towards agriculture rather than products for longer distance trade further stimulated this concentration, which is also reflected in the decline in production of unguents in the region in the third century.[592] At the same time, she also proposes a shift in the third century to a more mixed form of agriculture and pastoralism. This is an interesting idea, but as she indicates herself as well, evidence for this last point is scarce. Furthermore, she shows that a climate-based explanation for a shift to pastoralism is untenable, as the second and early third centuries rather shows a return to earlier humid conditions after a decline around 100 C.E. She does not, however, offer an alternative reason.[593]

2.4.4 The Negev and the Sinai

To the west of the Jordanian Highlands and the Petra region lie the dry regions of the Wadi ʿAraba, and beyond it the Negev. Even in the seemingly inhospitable environment of the Negev, human settlement goes back to the Early Neolithic. In the harsh surroundings of the southern Negev, where precipitation drops below 50 mm per year, and evaporation rates rise to over 4000 mm, there are sites with continuous activity from such early times (although of course, the

[589] Khairieh ʿAmr, 'Wadi Musa in der Antike', in *Petra* (Basel: Verlag Schwabe, 2012), 142–46; Z. Al-Salameen and H. Falahat, 'Two New Nabataean Inscriptions from Wadi Musa, with Discussion of Gaia and the Marzeah', *Journal of Semitic Studies* 57, no. 1 (1 April 2012): 38, https://doi.org/10.1093/jss/fgr032.
[590] Mark Driessen and Fawzi Abudanah, 'The Udhruh Region: A Green Desert in the Hinterland of Ancient Petra', in *Water Societies and Technologies from the Past and Present*, ed. Yijie Zhuang and Mark Altaweel (UCL Press, 2018), 129, https://doi.org/10.2307/j.ctv550c6p.13; Abudanah, 'Settlement Patterns and Military Organisation in the Region of Udhruh'.
[591] Manfred Lindner, John P Zeitler, and I Künne, 'Sabra: Entdeckung, Erforschung Und Siedlungsgeschichte Einer Antiken Oasenstadt Bei Petra (Jordanien)', *Archiv Für Orientforschung*, no. 44–45 (1997): 542–45, 558; Laurent Tholbecq et al., 'Le site nabatéo-romain du Wādī Sabrā : état des lieux, relevé et hypothèses de travail', in *De Pétra à Wadi Ramm : le sud jordanien nabatéen et arabe*, ed. Laurent Tholbecq (Brussels: Presses Universitaires de Bruxelles, 2015), 63–100.
[592] Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 40, 130–32; Susan E. Alcock, *Graecia Capta: The Landscapes of Roman Greece* (Cambridge [etc.]: Cambridge University Press, 1993).
[593] Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 98–99, 121.

climate was much more hospitable in the Neolithic). In comparison, the northern Negev Highlands show a little more varied vegetation on slopes and in wadi beds.[594]

Closer to the Roman period, Nabataean activity in the region goes back to the third century B.C.E., with the development of the trade routes towards Gaza and the Sinai continuing from Petra, the destination of the existing Nabataean incense routes through the Arabian Peninsula as known from literary sources.[595] At the very least it is evident from the Zenon Papyri that Gaza played a role in the spice trade in the third century B.C.E.. There is a presence of early Nabataean (third century B.C.E.) camps at Oboda, Elusa and Nessana, forts or stations in the ʿAraba at Moʾa and ʿEn Rahel, and in the Negev at ʿEn Ziq and Qasr Ruheibeh. That most of these appear to have been the locations of earlier Iron Age forts confirms, besides Nabataean use, also the longevity of the route.[596] But while this trade was already active, it must be said that Rosen argues convincingly that in the Negev evidence for Nabataean pastoralism, the other aspect considered a typical part of the Nabataean lifestyle, belongs to a later period. Almost all of the material culture found at nomadic sites seems to have derived from sedentary centres, and dates back to the first century B.C.E. at the earliest.[597]

The establishment of permanent non-military Nabataean settlements in the Negev only seems to date to the first century B.C.E., around the same time that a new road was established through the Makhtesh Ramon, rather than the older route around it. The first of these places appear to have been Oboda and Elusa, growing out of the earlier camps. At the same time, road stations seem to have been built, some of which, like Rehovot-in-the-Negev and Sudanon, grew into settlements.[598] A second wave of settlements, along a new route further north, included Mampsis and ʿEn Hazeva (a site with earlier habitation going back to the 10th century B.C.E., probably to be identified with to Thamara), and road stations at Horvat Hazaza and Mezad Yeroham,

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[594] Uzi Avner, 'Studies in the Material and Spiritual Culture of the Negev and Sinai Populations, During the 6th-3rd Millennia BC' (Jerusalem, Hebrew University, 2002), 4.
[595] C Durand, 'The Nabataeans and Oriental Trade: Roads and Commodities (Fourth Century Bc to First Century Ad)', *Studies in the History and Archaeology of Jordan* 10 (2009): 405–11; Robert Wenning, 'Towards "Early Petra": An Overview of the Early History of the N Abataeans in Its Context', in *Men on the Rocks: The Formation of Nabataean Petra*, ed. Michel Mouton and Stephan SG Schmid, Supplement to the Bulletin of Nabataean Studies 1 (Berlin: Logos Verlag, 2013), 18; Tali Erickson-Gini and Yigal Israel, 'Recent Advances in the Research of the Nabatean and Roman Negev', in *The Nabateans in the Negev*, ed. Renate Rosenthal-Heginbottom ([Israel]: Reuben and Edith Hecht Museum, 2003), 9*-14*.
[596] See for a discussion also Israel Shatzman, *The Armies of the Hasmonaeans and Herod: From Hellenistic to Roman Frameworks* (Mohr Siebeck, 1991), 100-102 including notes 8 to 12; Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 1119–33; Erickson-Gini and Israel, 'Recent Advances in the Research of the Nabatean and Roman Negev', 9*.
[597] Steven A. Rosen, 'The Nabateans as Pastoral Nomads. An Archaeological Perspective', in *The World of the Nabateans*, ed. Konstantinos D. Politis (Stuttgart, 2007), 347, 367–69.
[598] Tali Erickson-Gini, 'The Nabataeaan-Roman Negev in the Third Century CE', in *The Late Roman Army in the Near East from Diocletian to the Arab Conquest*, ed. Ariel Lewin et al., BAR International Series 1717 (Oxford: Archaeopress, 2007), 91–94.

between Oboda and Mampsis. In the second century luxurious residences were built in Mampsis, which remained in use well into the Byzantine period.[599]

Far less studied, further west a large number of settlements from the same period lay along the coastal and inland routes towards Pelusium and Magdolos, on the eastern end of the Nile Delta. The best overview for this is Herbert Verreth's excellent online publication which expands on his original PhD thesis.[600] Of the settlements in the Sinai on the inland route from Nessana, Qasr Ghet and Bir el-Mazar certainly appear to have been Nabataean. Out of sixteen sites that were potentially used in the Roman or Byzantine periods.[601] Qasr Ghet (or Qasrawet), only some 30 kilometres from Pelusium, seems to have been a large commercial and religious centre, also located on an alternative route passing the oasis further south along Bir el-Maghara.[602] Some of the settlements on the coastal road seem to go back to the pre-Nabataean period, while others such as Ostrakine were rather young settlements, coming into existence in the first century B.C.E..[603] As for Nabataean influence on the coastal route from Gaza to Pelusium, two inns were located during the Israeli northern Sinai surveys, one at el-Kharruba and one at Sadot, the latter measuring over 8000 m^2.[604] Beyond Raphia, the main settlements to the west seem to have been Bitylion, Kasion, Rhinocolura, Ostrakine and Gerra.[605]

As Tali Erickson-Gini points out, the second century saw increased building activity in the region, such as the theatre at Elusa.[606] However, Erickson-Gini has argued that various sites in the Negev were in decline at the beginning of the third century. Some of these, like Thamara, were abandoned entirely.[607] Based on the sudden abandonment of a fully stocked pantry in that period, without any signs of destruction, and the contemporary abandonment of an inn at Sha'ar Ramon and the fort at Moyat ʿAwad, it has been suggested that an epidemic took place around this time.[608] Similar signs of abandonment at Petra at the 'Painters Workshop' and the 'Marble Workshop', with comparable ceramic assemblages, although originally dated to a different period, should according to Erickson-Gini also be considered signs of the same epidemic. Taken

[599] Erickson-Gini, 95, 97.
[600] Herbert Verreth, 'The Northern Sinai from the 7th Century BC till the 7th Century AD. A Guide to the Sources' (Leuven, 2006), https://lirias.kuleuven.be/bitstream/123456789/163486/2/sinai_1.pdf.
[601] Verreth, 590.
[602] Verreth, 662–73.
[603] Verreth, 350–54.
[604] Verreth, 216, 251.
[605] Stern, Lewinson-Gilboa, and Aviram, *NEAEHL*, 1171–73, 1384–1403; See also Zeev Meshel, 'Was There a "Via Maris"?', *Israel Exploration Journal* 23, no. 3 (1973): 162–66; Zeev Meshel, *Sinai : Excavations and Studies*, BAR International Series (Oxford: Archaeopress, 2000).
[606] Tali Erickson-Gini, *Nabataean Settlement and Self-Organized Economy in the Central Negev : Crisis and Renewal*, BAR International Series 2054 (Oxford: Archaeopress, 2010), 50.
[607] Erickson-Gini, 'The Nabataeaan-Roman Negev in the Third Century CE', 97.
[608] Tali Erickson-Gini, 'Oboda and the Nabateans', *STRATA: Bulletin of the Anglo-Israel Archaeological Society* 32 (January 2014): 95–96.

together with the fact that at this time the coinage of Petra also ceased, she makes an interesting case.[609]

In a number of survey maps of the Negev published by the Archaeological Survey of Israel, the general trends sketched above seem to be corroborated. After the annexation there was continuation of habitation in both the largest settlements as well as small sites. But while these remained in use well to the end of the second century, decline had set in during the third.[610] Where Nabataean sites were limited or ephemeral to begin with, the period after annexation does not seem to have produced much evidence either (although a Byzantine floruit is visible).[611] However, the third-century decline is certainly not seen everywhere, in some cases possibly because the periodisation has not been made clear.[612] As Steve Rosen indicates for maps 201 and 204 in the central Negev, the assemblages from the sites there showed little diversity from the Roman to the Byzantine and even Early Islamic periods, making it hard to create a clear chronology.[613]

In the late third and early fourth centuries, a large number of Roman forts was built along the routes, often at older Nabataean sites, including abandoned locations such as Thamara and Sobata. This is especially evident along the stretches between Moyat Awad and Oboda on the southern route and between ‘En Hazeva and Mampsis in the north.[614] After this period the six main settlements in the region (Mampsis, Oboda, Nessana, Sobata, Soudanon and Elousa) become larger, and at the same time an intensification of agriculture in the surroundings is visible. An increased focus on local production for export to Gaza, especially of wine, becomes visible from the fourth century onwards, while the link with Petra declines. Interestingly, the

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609 Erickson-Gini, 94–95.
610 Mordechai Haiman, *Map of Har Ḥamran Southeast (199) = Mappat Har Ḥamran Dĕrōm-Mizrath (199)*, Archaeological Survey of Israel (Jerusalem: Israel Antiquities Authority, 1993); Yesha‘yahu Lender, *Map of Har Nafḥa (196) 12-01*, Archaeological Survey of Israel (Jerusalem, 1990).
611 Gideon Avni, *Map of Har Saggi Northeast (225) = Mappat Har Śagī Ẕĕfōn-Mizraḥ (225)*, Archaeological Survey of Israel (Jerusalem: Israel Antiquities Authority, 1992); Steven A. Rosen, *Map of Makhtesh Ramon (204) = Mappat Maḵteš Ramon (204)*, Archaeological Survey of Israel (Jerusalem: Israel Antiquities Authority, 1994).
612 Ya’akov Baumgarten, *Map of Nahal Secher (131)*, Archaeological Survey of Israel (Jerusalem: Israel Antiquities Authority, 2012); Ya’akov Baumgarten, *Map of Nahal Nahal Bekaa (132)*, Archaeological Survey of Israel (Jerusalem: Israel Antiquities Authority, 2014), https://www.antiquities.org.il/survey/new/default_en.aspx?surveynum=50.
613 Steven A. Rosen, *Map of Mitzpe Ramon (201)*, Archaeological Survey of Israel (Jerusalem: Israel Antiquities Authority, 2016), https://www.antiquities.org.il/survey/new/default_en.aspx?surveynum=2151; Rosen, *Map of Makhtesh Ramon (204) = Mappat Maḵteš Ramon (204)*.
614 Erickson-Gini, ‘The Nabataeaan-Roman Negev in the Third Century CE’, 98; Erickson-Gini and Israel, ‘Recent Advances in the Research of the Nabatean and Roman Negev’.

intensive use of terracing and water agricultural water management in the region, often attributed to the Nabataeans, appears to date entirely to this Late Roman settlement phase.[615]

2.4.5 The ʿAraba, Ḥismā and the Red Sea ports (Figure 29)

Several routes ran from Petra towards the south. As already described, these trade routes into Arabia Felix appear to have been the original source of Nabataean wealth. For the Wadi ʿAraba, west of Petra, Bowersock states that due to the hot and arid conditions the potential routes were not used. However, it appears that routes from Bir Madhkur, near Petra, to the port of Aila in the south, and to Zoara at the Dead Sea in the north, were certainly in use. With the transfer of Legio X Fretensis to Aila in the Diocletianic period, forts were built at those places that had perennial water sources or where groundwater could be accessed through wells, such as at Yotvata and Gharandal, and milestones were set up along the route. Earlier finds at these locations, and a Nabataean inn from the first century at Horvat Dafit attest to earlier use of the route.[616] Numerous other pathways and camel tracks through and across the Wadi ʿAraba in the surroundings of Bir Madhkur were studied by Andrew M. Smith, and show that the region was certainly not devoid of traffic.[617] Added to that, the potential for agriculture indicates that the valley was not entirely uninhabitable either, but even so Roman presence seems to be limited to inns and the later forts.[618] At Timna, as already discussed, Roman mining seems to have been without success. Even so, it appears that there was a Roman presence. Findlater suggests Timna as an alternative for Ad Dianam, present on the Tabula Peutingeriana, instead of Yotvata.[619]

[615] But continues well through the subsequent Islamic centuries. Steven A. Rosen, 'The Decline of Desert Agriculture: A View from the Classical Period Negev', in *The Archaeology of Drylands : Living at the Margin*, ed. Graeme Barker and David Gilbertson, One World Archaeology (London: Routledge, 2000), 44–61, https://login.ezproxy.leidenuniv.nl:2443/login?URL=https://search.ebscohost.com/login.aspx?direct=true&db=e000xww&AN=93414&site=ehost-live; Tali Erickson-Gini, 'Nabataean Agriculture: Myth and Reality', *Journal of Arid Environments*, Ancient Agriculture in the Middle East, 86 (November 2012): 50–54, https://doi.org/10.1016/j.jaridenv.2012.02.018.
[616] Erickson-Gini, 'The Nabataeaan-Roman Negev in the Third Century CE', 97; Andrew M. Smith, 'Pathways, Roadways, and Highways: Networks of Communication and Exchange in Wadi Araba', *Near Eastern Archaeology* 68, no. 4 (2005): 184–85.
[617] Smith, 'Pathways, Roadways, and Highways', 185.
[618] Ramsay and Smith II, 'Desert Agriculture at Bir Madhkur'.
[619] Findlater, 'Imperial Control in Roman and Byzantine Arabia', 75–77.

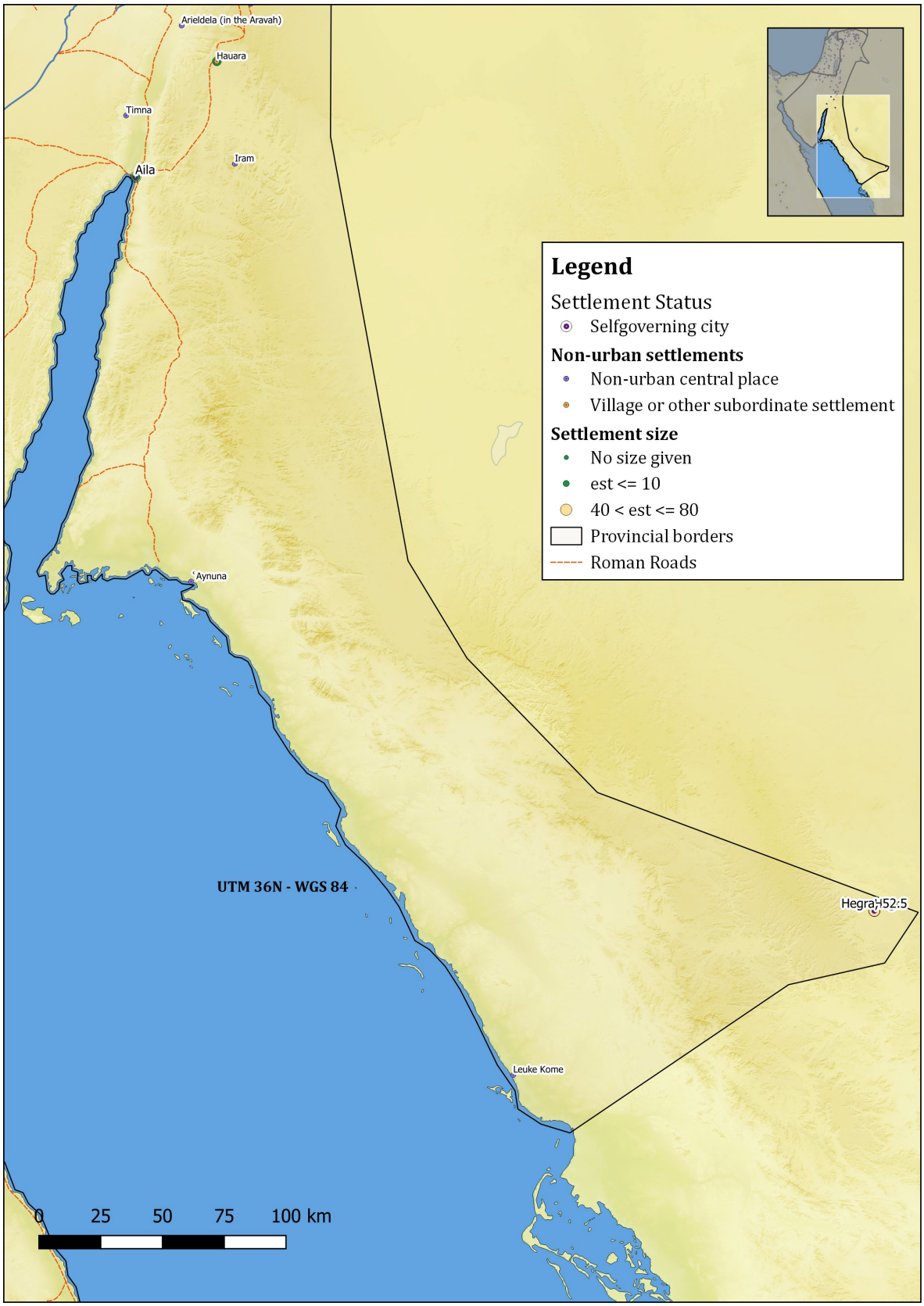

Figure 29 Hegra and the Red Sea

To the east, on the southernmost plateau of the Sharāh, there are more indications of settlement in the Roman period, along the last stretch of the Via Nova Traiana from Petra to Aila. Originally

surveyed in 1984 by Hart, the area around modern Ras en-Naqb shows a significant number of settlements from antiquity. Receiving around 150 mm of rainfall per year, and with a number of perennial springs, the region is at least somewhat suitable for permanent settlement, compared to the ʿAraba in the west and the Ḥismā desert around it. In Hart's findings, however, these settlements were mostly occupied throughout the Iron Age and later by the Nabataeans, with south of Sadaqa almost no Roman habitation.[620] A more recent survey, the Ayl to Ras an-Naqab archaeological survey (ARNAS), mentions five Roman villages south of Ayl and Sadaqa, out of a high number of 179 sites with Roman pottery.[621] The only larger settlement in the Roman period, however, appears to have been Humayma, ancient Hauara, situated in the Ḥismā desert beyond the scope of their survey. Showing signs of habitation from the first century B.C.E., after the annexation it became the site of one of the only known Roman forts of the second century in Arabia. The settlement around it grew to about 10 hectares at its height.[622] Nabataean stations at Quweira and Khirbet el Khalde were also replaced by Roman forts, but these seem to be Diocletianic.[623]

That brings us to Aila, at modern Aqaba. As the closest point to Petra with access to the Red Sea, it has always been an important port city, despite its climatically unfavourable location in the Wadi ʿAraba. In fact, it appears that its direct hinterland did not show any evidence of agricultural production at all.[624] Like many places, the area shows a settlement history going back far earlier than the Roman period, in this case to the mid-fourth millennium B.C.E., although the earliest habitation was at a tell four km north of the current coastline. After a Persian and Iron Age II settlement at Tell el-Kheleifeh, it seems there was an occupation gap, until in the first century B.C.E. a substantial Nabataean settlement was founded. This settlement remained occupied until the fourth century C.E. By then, a new, walled settlement had been erected 500 meters further south.[625] It was likely a very small settlement, as it measured under three hectares in the Early Islamic period. If Parker's 1997 map gives a good estimation of the Roman-period size, the Roman town was even smaller.[626]

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[620] Stephen Hart, 'Some Preliminary Thoughts on Settlement in Southern Edom', *Levant* 18, no. 1 (1 January 1986): 54, https://doi.org/10.1179/lev.1986.18.1.51.
[621] Burton MacDonald and American Schools of Oriental Research, *The Ayl to Ras An-Naqab Archaeological Survey, Southern Jordan (2005-2007)*, Archaeological Reports ; 16 235202347 (Boston, Mass: American Schools of Oriental Research, 2012), 467–78.
[622] Kennedy, *The Roman Army in Jordan*, 193–94.
[623] Kennedy, 198–204.
[624] Kennedy, 209.
[625] S. Thomas Parker, 'Preliminary Report on the 1994 Season of the Roman Aqaba Project', *Bulletin of the American Schools of Oriental Research*, no. 305 (1997): 41, https://doi.org/10.2307/1357744.
[626] Parker, 27.

Along the eastern coast of the Red Sea, it is evident from Ptolemy that a number of other ports than Aila existed.[627] But compared to for instance Berenike and Myos Hormos on the western coast, these are hardly known. For the port of Leuke Kome, both ʿAynuna and al-Wajh have been suggested as possible locations. Dario Nappo recently argued for the latter, and with some submerged remains of a mole and apparent ancient buildings it makes for a possible contender, but the northern port at ʿAynuna may have been used as well. Besides, he suggests that the digging of the canal to Clysma caused the northern ports to function as the more important intermediary harbours, sending Leuke Kome and Berenike into decline.[628]

Inland, evidence for the Ḥijāz is rather limited. While Nabatean inscriptions and graffiti show evidence of human activity, currently no fixed settlement has been identified. Close to Aila, the sanctuary of Allat at Wadi Ramm will have functioned as a stop along the route south.[629] To the south, only the outpost of Hegra, at Madā'in Ṣāliḥ, is well known. It is currently being excavated by a joint Saudi-French team. Like Petra, Hegra appears to have been inhabited continuously from as early as the fourth century B.C.E..[630] As mentioned in the introduction, Roman military activity in Hegra is well known from inscriptions, and increased with the new excavations. New inscriptions show the presence of officers of the Legio III Cyrenaica.[631] The Nabataean city was walled in the first century C.E., before Roman annexation, and encompassed 52.5 hectares. But the mostly mudbrick rampart rather resembles Middle Eastern ramparts from earlier millennia than anything Hellenistic or Roman.[632] With at least ten meters between the residential area and the wall, it seems that at no point after the building of the wall did the population grow enough to fill the area entirely.[633]

[627] Ptol., *Geog.*, 5.17.1.
[628] Dario Nappo, 'On the Location of Leuke Kome', *Journal of Roman Archaeology* 23 (January 2010): 338, 341, 344, https://doi.org/10.1017/S1047759400002439; Michael Decker, 'Settlement and Trade in the Red Sea in Late Antiquity', *Ancient West & East* 9 (2010): 204.
[629] Sartre, *The Middle East under Rome*, 237–38.
[630] Graf, 'Petra and the Nabataeans in the Early Hellenistic Period', 46.
[631] Laila Nehmé et al., 'Report on the Fifth Season (2014) of the Madâ'in Sâlih Archaeological Project', 3 March 2015, 37–39, https://halshs.archives-ouvertes.fr/halshs-01122002/document.
[632] Nehmé et al., 19.
[633] Nehmé et al., 21.

2.4.6 Public buildings

Looking at public buildings for the small number of cities of the southern part of the province of Arabia, much of the same can be seen as in the other regions. As Figure 30 and Figure 31 show, the link between settlement size and number of public buildings is quite clear in this region, albeit with the usual caveats that this is a very small set of settlements, and new archaeological finds at one or two sites could completely upend this apparent correlation. What perhaps sets the region apart most, is the comparative lack of entertainment structures. But with settlement sizes mostly comparable to the lower tiers of the other regions, it is not surprising to see that the monumental profiles are also similar to those settlements. In other words, mostly consisting of religious buildings and perhaps a structure of one or two other categories.

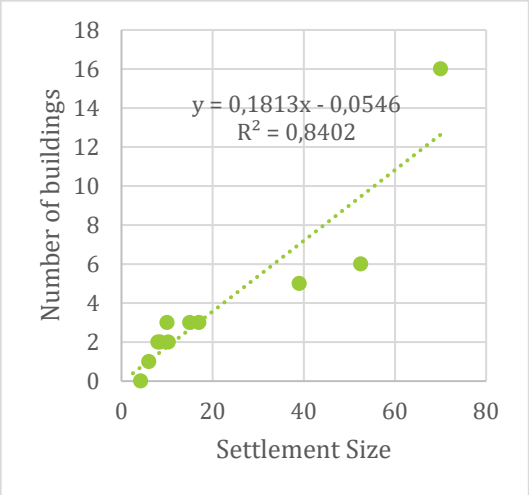

Figure 30 Correlation buildings and city size (Arabia, south)

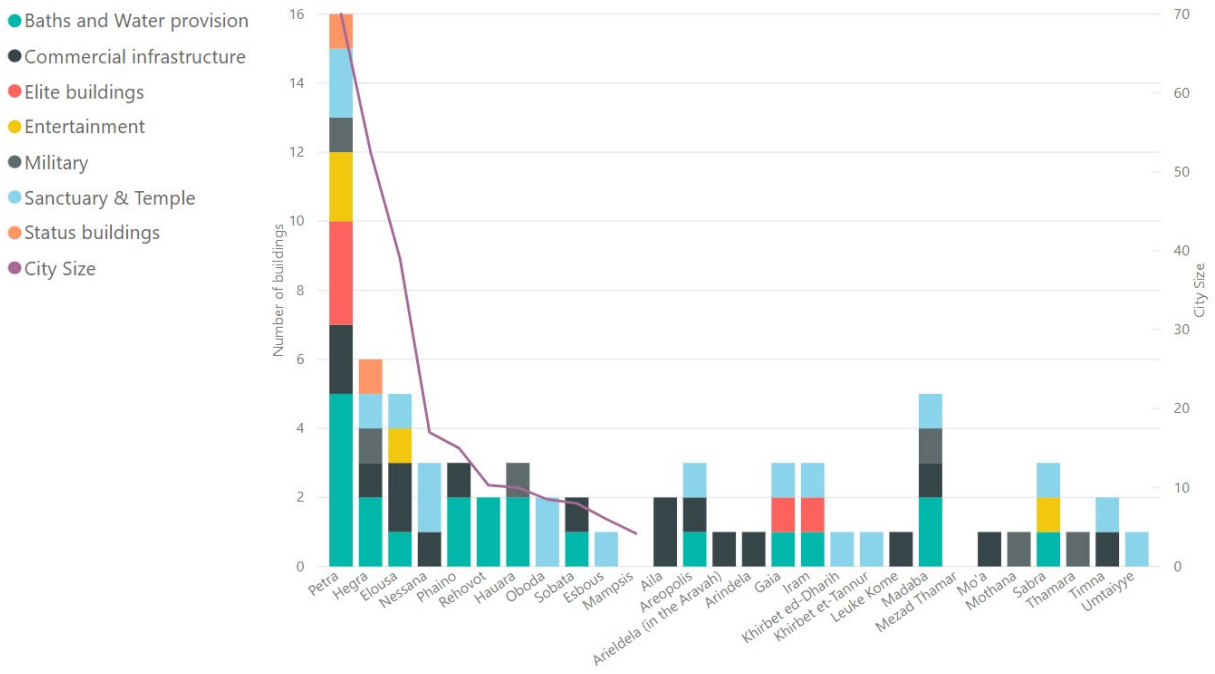

Figure 31 Number of buildings against city size (Arabia, south)

Table 8 Building types in Arabian cities

	Baths and Water provision	Commercial infrastructure	Elite buildings	Entertainment	Military	Sanctuary & Temple	Status buildings	Grand Total
Petra	**5**	**2**	**3**	**2**	**1**	**2**	**1**	16
Hegra	**2**	**1**			**1**	**1**	**1**	6
Madaba	**2**	**1**			**1**	**1**		5
Elousa	**1**	**2**		**1**		**1**		5
Areopolis	**1**	**1**				**1**		3
Oboda						**2**		2
Aila		**2**						2
Esbous						**1**		1
Grand Total	11	9	3	3	3	9	2	40

2.4.7 Conclusion

The evidence relating to the cities, towns and villages of the Roman province of Arabia suggest various settlement processes taking place. In the south, both in the Negev as well as around Petra, the number of settlements seems to have contracted, with especially the smallest settlements disappearing. However, the periods of decline seems to differ somewhat between regions, with contraction around Petra setting in during the later second century, and in the Negev in the early third century. If Kouki and Erickson-Gini are correct in their assessments, in Petra this initially reflects a consolidation of property and the growth of a landowning elite, while in the beginning of the third century the outward focus of Petra declines, impacting especially those settlements in the Negev dependent on Petra's trade routes towards the west. Furthermore, while around Petra it seems that mostly smaller settlements were abandoned, in the Negev it appears that almost all settlements disappeared, except a few of the largest settlements, until the Late Roman revival of the Negev region.

To the north, the settlements of the Jordanian Plateau may have undergone an earlier decrease in the second century, although as stated this may in part be due to a misinterpretation of ceramic evidence in older surveys, with Nabatean forms remaining in use for a longer time. If the findings are closer to those of the Dana Archaeological Survey, the overall picture would be one of higher continuity throughout the Classical period.[634]

Throughout the province, settlement appears bound to the possibility of exploiting water sources. As such, a very high level of continuity in settlement locations is visible, with people throughout all periods gathering around the same sources and wadis. The more limited the resources, the more vulnerable the region appears to be to shocks, as is shown by the apparent difference between the stronger continuity in the north and near total collapse in the Negev. Similarly, the drier regions also benefited the most when water resources were harnessed effectively, as shown by the intensification of settlement under the Nabataeans. A more influential change, however, seems to come after the period under study, caused by the increased number of military locations in the later third and early fourth centuries. With population focussing around military sites, sometimes locations of existing settlements changed, such as Umm el-Jimāl in the Decapolis, and abandoned settlements in the Negev were again inhabited. There we also see the intensification of settlement and agriculture in a region that had remained mostly devoid of cultivation up to that point.

[634] Findlater, 'Imperial Control in Roman and Byzantine Arabia', 233–34.

2.5 Overall conclusions for the southern Levant

2.5.1 Geographical factors

As has already become evident when discussing the northern provinces, natural geography plays a large role in the preferential location of settlements. The regions discussed in this chapter roughly correspond to the various ecological zones found in the southern provinces, each with their own corresponding settlement patterns. In Syria Palaestina we find the most fertile areas of the region in the coastal plains. These are considerably wider than the narrow coastal plains of the northern Syrian provinces, and have a combination of good soils, accessible terrain, a number of perennial streams and decent rainfall. It is no surprise to find both new and old major cities like Caesarea and Acco thriving here - just as there had been powerful polities centred around coastal cities before that, at for instance Ascalon and Gaza, the latter remaining a major city in the Roman period.

At the same time, the central hills or highlands catch most rainfall, especially in the Galilee. Suitability for settlement here is, however, somewhat offset by the more mountainous terrain. Nonetheless, fertile valleys allow for cities such as Sebaste. And, as will be further discussed below, before its destruction, Jerusalem had been the major city of the region despite being situated in the highlands.

The Jordan Rift Valley has an altogether different climate. In the north abundant rainfall still creates optimal pockets for cities like Caesarea Paneas and Scythopolis to thrive, and around the lake of Galilee a wide variety of settlements can be found, from small villages to a city like Tiberias. However, especially south of Scythopolis, the elevation difference with the central highlands becomes more pronounced, and hence the rain shadow effect makes this a particularly dry region. From here down to the Aravah, no major city is found within the valley. Despite that, a number of settlements still existed, such as the port town of Aila. Through natural springs and irrigation, this area was in fact known for its very lucrative date palm plantations, especially around Jericho and En Gedi.

Beyond the Rift Valley, we still find sufficiently high rainfall levels in parts of the Jordanian highland plateaux, again declining towards the east and south. As already indicated in the introduction, specific local conditions (i.e. highly fertile volcanic soils) in the Hauran somewhat made up for lower rainfall levels in that region, but it is clear that access to water sources is crucial for the feasibility of settlement in this area. Similarly, cities remained smaller and fewer than west of the Rift Valley.

As in the Hauran, at the southern end of the Jordanian plateaux we enter what was described in the introduction as a zone of less reliable rainfall. Agriculture is possible, but may suffer greatly

in drier years if no precautions are taken. As such, in the region around Petra we find the application of various techniques to improve agricultural conditions. Besides Petra, however, this region did not support any other major urban settlement. And, being flanked on the west by the ʿAraba (and the Negev west of that), and to the east by the steppes and deserts of the Badia, the city had little competition in its surroundings. As noted, however, the desert regions still show a number of small settlements and stations, including a military outpost at the Azraq oasis and a few small ports on the Red Sea. And, at a good distance to the southeast, was located the desert city of Hegra. But certainly, no cities of the order of magnitude as in neighbouring northern Sinai and Egypt were possible here.

2.5.2 Historical trajectories

As was the case for the north, the preceding periods left a clear, but varied mark on the settlement patterns of the south. Where for the Seleucids the Syrian Levant became a core zone of their declining empire, for the Ptolemies the Levant cannot have been anything but a peripheral frontier zone, mainly good for the extraction of resources. And in a sense, except for several centuries following the Bronze Age collapse, it was a peripheral and/or frontier zone from the Egyptian New Kingdom onwards, during the Assyrian, Neo-Babylonian, Achaemenid, Ptolemaic, and briefly, Seleucid period. Interestingly, a number of settlement patterns can be traced back to the small polities that grew up in that interim between Egyptian and Assyrian rule. Damascus grew to prominence as an Aramaean capital, while a number of coastal cities retained semi-independent roles into the Persian era. And of course, there were the kingdoms of Israel and Judah.

As in the north, urban centres do not seem to have been much stimulated in the Persian period, although again, this was not exactly a land devoid of cities at the onset of the Hellenistic period. To name but one example, Gaza was one of the cities that Alexander had to besiege, and whose population he sold into slavery.[635] One notable difference specifically found in Syria Palaestina, however, that persisted from Ptolemaic rule into the following periods into Roman annexation, was the organisation of the region into administrative units called toparchies. Unlike territories assigned to self-governing cities, these toparchies could have a non-urban centre – some of which grew into cities over time, while others did not. Clearly, however, in the south there was also a good number of Hellenistic foundations. Furthermore, it remains an open question whether the reference to "the Antiochenes in Jerusalem" in 2 Macc. 4.9 means that the city had been refounded with that name, and whether it was a garrison or veteran settlement that was

[635] Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 286.

installed into Jerusalem upon its conquest by the Seleucids in 168/7 B.C.E.[636] Either way, it is another good indication that such colonies were not necessarily foundations *ex nihilo*.

As in the north, with the Seleucid conquest and subsequent disintegration of the empire, a number of kingdoms and city states came into existence or gained independence, some tracing back their legacy to pre-Hellenistic or earlier states; the rapidly expanding Hasmonean kingdom of Judea is a case in point. In the subsequent power vacuum urbanism started to accelerate, for instance in Phoenician and Nabatean territory.

As everywhere, the numerous conflicts that affected this region could alter the fortunes of a city, no matter how long its history. A good example is Kedesh in upper Galilee, where habitation can be traced back to a major settlement in the Early Bronze Age; it was a regionally prominent centre from the Late Bronze Age onwards and probably served as a form of estate centre under the Ptolemies. However, it lost its claim to centrality after the Maccabean Revolt in 143 B.C.E., judging from the abandonment of a large administrative building in the settlement.[637] When it resurfaces in written sources two centuries later, it is as a large village in the territory of Tyre.[638]

Similarly, a considerable number of settlements sacked by Alexander Jannaeus never recovered; for instance, the above-mentioned Marisa was left entirely abandoned. And as in the north, siding with the right contender during the Roman civil wars meant maintaining relative independence for another century or so – which probably contributed significantly to the continued flourishing of the Nabatean kingdom and its capital at Petra. Conversely, resisting Roman hegemony on multiple occasions eventually left Jerusalem a shadow of its former self.

In another sense, however, the settlement patterns in the south appear far more dynamic than in the north. Just as some old cities fell into oblivion, cities that were recently founded or refounded in the Herodian period, like Tiberias and the two Caesareas Maritima and Philippi, grew into some of the core cities of Syria Palaestina. Even younger cities emerging in the Roman period eventually eclipsed some of the older cities around them by the Late Roman period, like Azotos Paralius (Ashdod Yam) and Legio. East of the Rift Valley, where most of the Decapolis sites had shown signs of urbanism in the Bronze Age, the majority had long since declined. Only by the late Hellenistic period did most of these cities start to show signs of habitation again, but they did not grow into cities. And just the same, towards the south, Petra's evolution from a cult

[636] Cohen, 231, 255–66.
[637] Peter James Stone, '"Provincial" Perspectives: The Persian, Ptolemaic, and Seleucid Administrative Center at Tel Kedesh, Israel, in a Regional Context' (Ph.D., United States -- Ohio, University of Cincinnati, 2012), http://search.proquest.com/docview/1101004887/abstract/EA82346BC8664D29PQ/1.
[638] Sabar, 'Josephus' "Cydasa of the Tyrians" (Tel Qedesh) in Eastern Upper Galilee'; Stone, '"Provincial" Perspectives', 26; Jos., *Bell. Jud.*, 2.459.

site to the capital city of the Nabatean kingdom seems to have taken flight only in the first century B.C.E.

2.5.3 The urban system

In his *Economy of Roman Palestine*, Ze'ev Safrai proposes a model for the development of the settlement system of the region. And while his conclusions may be somewhat on the rough side, there is elegance in the simplicity of his model. Some of his statements are perhaps too general: "The Greeks established colonies along the coast from Achzib in the north to Raphia in the south. However, the ancients did not really know which were the appropriate spots in which to set up a port or harbour city. They also did not always know where such cities were unnecessary. As a result of this ignorance, many cities were founded in the Hellenistic period, but only few of these cities survived beyond that time."[639] These observations touch on a number of critical factors in the development of a settlement system: people may settle wherever they can. But it is a combination of geographic, historical and economic factors that influence a settlement's survivability, and potentially its development into a larger city. Perhaps Safrai's ideas are a bit dubious on what, from a Hellenistic ruler's or general's perspective, determined the 'necessity' of founding a city, or by what agency or process the 'necessity' of a city would be determined in the long run. They do however raise the question which factors determined the extent to which a new foundation or elevation could impact, or be impacted by, existing structures. This determines the difference, perhaps, between 'successful' Caesarea Maritima and unsuccessful Philippopolis.

As Safrai points out: "Dor and Apolonia decline on account of the success and growth of nearby Caesarea. The same is true regarding the decline of Sebastea and the growth of Neapolis, only nine kilometers away."[640] It is debatable whether Dor and Apolonia actually declined, as they were never very large settlements to begin with – unless one counts the very instant 'decline' when Apollonia was sacked by Jannaeus.[641] But these settlements were certainly eclipsed. In that sense, the refoundation of Straton's Tower as Caesarea by Herod, and the continued use and investment into the city under Rome rule, coupled with its value as a port, allowed it to become a demographic pole of attraction, whereas the two neighbouring ports developed in a different way.

Essentially, Safrai considers there to be three main processes in urbanisation: new foundation, growth of existing cities, and selection. The latter he describes as "a necessary weeding-out

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[639] Zeev Safrai, *The Economy of Roman Palestine* (Routledge (London and New York), 1994), 9–25.
[640] Safrai, 12.
[641] Katharina Galor et al., 'Apollonia-Arsuf between Past and Future', *Near Eastern Archaeology* 72, no. 1 (1 March 2009): 4–27.

process."[642] Stronger cities thrive, weaker cities disappear. Using this approach, he gives a simple set of stages for the urbanisation process of Palestine, with initial foundations along the coast, followed by selection along the coast and foundations inland, followed by selection inland. Finally, there is filling in of intermediate areas with new foundations, further development, etc.[643]

The problem, of course, is that the described urbanisation of the region did not start with the creation of Hellenistic colonies, and not just on the coast. There were a number of cities already dotting the various regions of the south by the start of Alexander's conquests. For instance, Dor and Ioppe and their lands in the plain of Sharon were granted by the Achaemenids to the king of Sidon at the end of the sixth century B.C.E., while Ascalon was a major port and according to Pseudo-Scylax, the seat of a governor.[644] We already mentioned Gaza, Jerusalem and the cleruchy at Rabbat Amman (Philadelphia).[645] From a Hasmonean perspective, however, we observe a process which Zangenberg describes as "urbanisation through conquest."[646] Where initially the only urban agglomeration within Hasmonean lands was Jerusalem, with the conquest of the lands around it, the Hasmoneans incorporated cities into their realm. And with that, they also adopted the idea of a city as a *polis*, which would blossom under the Herodians into the *polis*-blueprint used in the foundation of, for instance, Tiberias by Herod Antipas.

The Ptolemaic and Seleucid foundations, Pompey's foundations, Herodian foundations; each were installed with specific agendas, such as regional control, curtailing Hasmonean influence, currying favour with the empire, etc. But grants of territories and legal or tax privileges could give a settlement a competitive edge over towns that did not receive these.

Alongside new urban foundations and incorporation of existing cities, we observe the continued use of the regional division into toparchies within former Hasmonean and Herodian territory. With Ptolemaic bureaucracy going down to village level, one sees a number of larger villages fulfilling the roles of administrative centres for the surrounding areas. In the Roman period the old Ptolemaic organisation was gradually replaced. Some toparchy centres were simply destroyed, like the fortress of Masada. Many of these centres became subordinate secondary settlements in the territory of other cities, while others became cities themselves. For example, En Gedi and Baitoletepha (or Bethletepha) were incorporated into the territory of Eleutheropolis as it was granted city status, the former toparchy centre Beth Govrin. That by

[642] Safrai, *The Economy of Roman Palestine*, 14.
[643] Safrai, 14–15.
[644] Carayon, 'Les Ports Phéniciens et Puniques. Géomorphologie et Infrastructures', 85.
[645] Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 268.
[646] Jürgen K. Zangenberg and Dianne Van de Zande, 'Urbanization', in *The Oxford Handbook of Jewish Daily Life in Roman Palestine*, ed. Catherine Hezser (Oxford: Oxford University Press, 2010), 165–88.

itself shows that up to that point, these areas did indeed have a non-urban centre. Note by the way the interesting recent publication of a seal that shows that Roman period Baitoletepha had a *boule*, despite clearly not being a city.[647] Similarly, Lod and Emmaus were raised to urban status, becoming Diospolis and Nicopolis. Thus, the beginning of the third century saw the end of the toparchy system in Judea.

So, in the century between the destruction of Jerusalem and the end of the Severan dynasty, we see all three processes described by Safrai: selection, new foundations and growth. Selection, with settlements declining and consolidating in the Negev, new foundations and elevations in Syria Palaestina and the Hauran, and indeed, further growth and development of existing cities throughout the entire region.

Looking at the overall rank-size graph for the south (Figure 32), we see a highly concave distribution, capping off at around 100 hectares, but with a clear heavy bulge around the 35-to-50-hectare zone. Perhaps surprisingly, it is not the places generally considered the main political centres for the region (Caesarea Maritima, Petra and Bostra) that top this chart. Instead, the upper tail is headed by the cities of Neapolis, Gerasa and Scythopolis. Including the sizes of neighbouring Akko, Caesarea Paneas, Damascus and Tyre would further consolidate this pattern, with Damascus taking the lead at 125 hectares, followed by Akko and Paneas. On the lower end of the bulge we find desert cities like Oboda, Mampsis and Aila, as well as non-urban central places like toparchy centres making up the lower tail. The artificial step around 10 hectares is due to estimation effects.

The largest cities in the region existed in similar environments. Places like Scythopolis and Gerasa have relatively large areas of agricultural land available to them without direct competition from other cities. Neapolis has Sebaste directly to its west, but in all other directions there is quite some space available. Caesarea Maritima was smaller than might have been expected from its situation: it was not just a successful port city combined with a central political role, it also had access to a fertile coastal plain with little competition – comparatively speaking of course, its southern neighbouring cities lay at 51 km (Ioppe), 44 km (Pegai) and 38 km (Sebaste). With average nearest neighbour distances at 11.5 km and 15.5 km for Palestininian and Decapolitan cities respectively, this is quite some space.

Interestingly, Petra and Bostra are quite large cities as well by regional standards, in a place where, just looking at rainfall figures, we would not expect to find large centres. However, as we

[647] Avner Ecker and Boaz Zissu, 'The Boule of Baitolethepha (Beit-Nattif): Evidence for Village and Toparchy Administration in Judea', *Journal for the Study of Judaism* 1, no. aop (19 March 2020): 1–12, https://doi.org/10.1163/15700631-12511287. There are examples elsewhere in the Roman Empire (eg Gallia), where secondary towns could have officials and councils as well.

have seen, locally adapted agricultural practices may very well have added to levels of food production. This will be discussed in more detail in the next chapter.

There are no cities here to match those of the Tetrapolis of the north, or the Egyptian cities to the west. In a sense, in the densely urbanised region of the Southern Levant, there is even less of a 'hierarchy' discernible here than in the north. Or, perhaps more accurately, this is quite similar to the distribution for the north except for the absence of the northern upper tail: all that lacks from this distribution is a similar upper echelon of cities above 100 hectares.

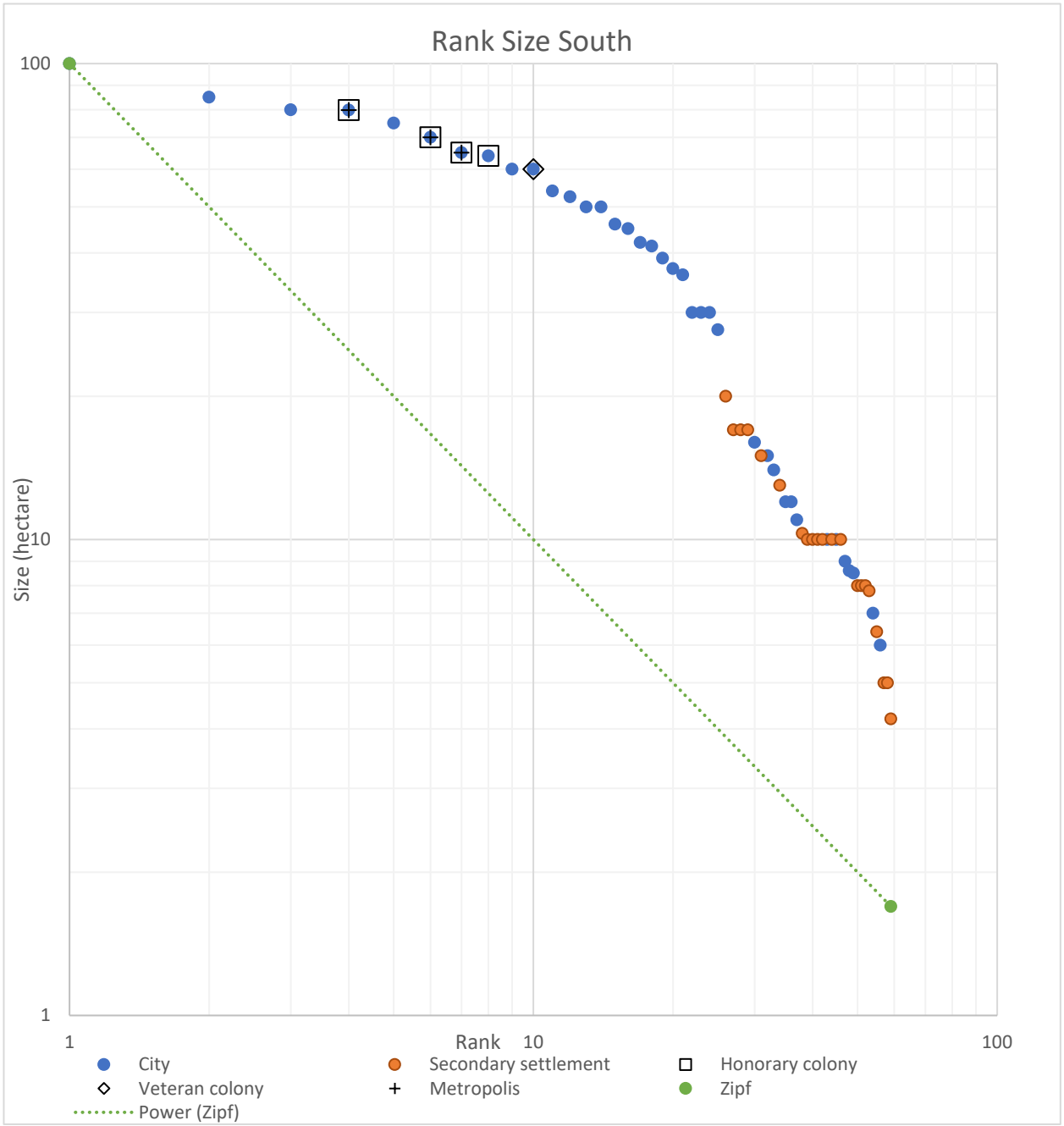
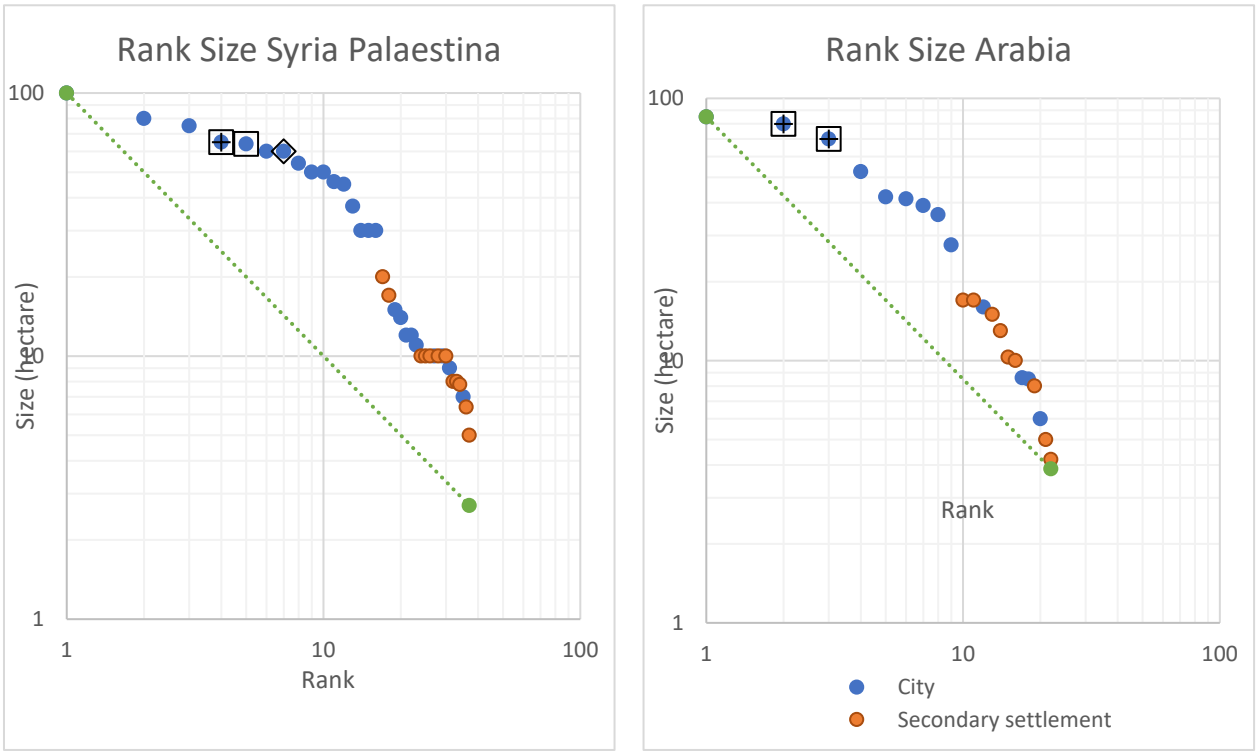


Figure 32 Rank size distribution of the southern provinces

The high concavity of this system might indicate we are looking at the pooling of multiple settlement systems. However, simply breaking this down into the two constituent provinces still generates two similarly concave systems.



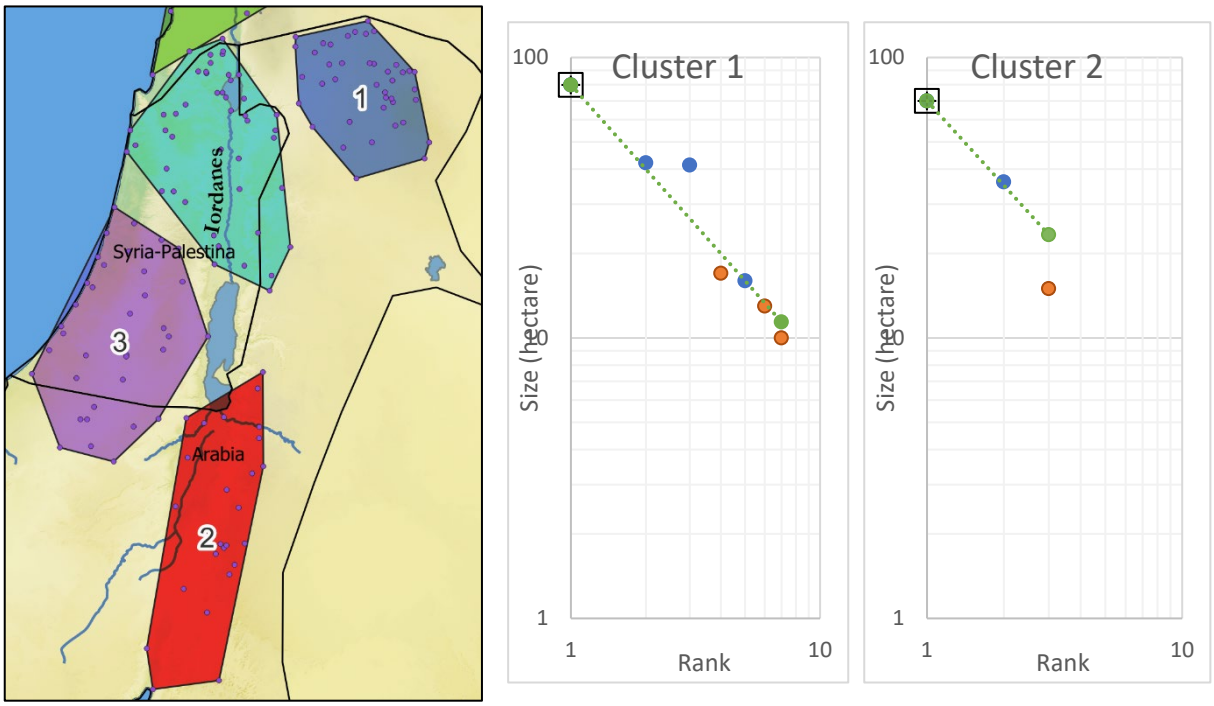


Figure 33 K-means clustering [4]

The region could of course be split up further. Following Palmisano, grouping the settlements using K-means clustering allows to make subdivisions based on proximity. Within this region, over 4 clusters the groupings become meaningless. A grouping in 4 gives the result shown in Figure 33. The resultant rank size plots show that cluster 1, roughly corresponding to northern Arabia around Bostra, does roughly approach a Zipf-distribution. The south is left with too few settlements (only three) to state anything meaningful.

Palestine, split up in clusters 3 and 4, interestingly still generates two concave distributions. If anything, this means that this is not so much the result of pooling, but rather suggests that for Palestine a concave distribution is a reflection of "population dispersion throughout a given area in sites that are of similar size and thus more competition and less integration between communities."[648] In other words, lots of small cities with small territories competing for space.

On the whole, the larger cities of the south share similar profiles to the main urban centres of the north, with a diverse portfolio of urban roles. Obviously, as stated, there are the political centres of Caesarea Maritima, Bostra and Petra. Most of the sites have access to a regular-sized hinterland; and at least Caesarea Paneas, Scythopolis and Gerasa potentially had a larger territory than some of their urban peers. Although quite unique in many respects, Petra can be compared to other capitals of former client kingdoms. Caesarea Maritima could benefit from its economic role as a port city.

[648] Palmisano, 'Confronting Scales of Settlement Hierarchy in State-Level Societies', 225.

The role of the military in cities was clearly present as well, with urban bases in Bostra and Jerusalem for the III Cyrenaica and X Fretensis. The VI Ferrata had an independent base at Kefar 'Othnai, which due to the presence of the base that came to be known as Legio and over time al-Lajjun. Legio is one of the few actual examples in the Levant of a civilian settlement evolving from *canabae* into a proper city of its own, but its formal recognition only took place at the beginning of the fourth century, when it was renamed Maximianopolis. By then, the city ranked among the largest of the region.[649]

[649] Broshi, 'The Population of Western Palestine in the Roman-Byzantine Period'.

Chapter 3 Analysis: size, territory and carrying capacity

3.1 Introduction

We have discussed some of the more evident historical patterns in the past chapters. There was a strong continuation in site locations. Many of the cities that were inhabited, great and small, were built in, over or next to the sites of past settlements, with obvious examples being Damascus, Gaza, Ascalon and Jericho. They did not however, necessarily share in the prominence of those earlier cities and villages. In the Roman period the area of the Bronze Age city of Ebla was a backwater in the plain of Chalcis. The city of Mari, in the Jabbul plain, appears to have become even less important. Megiddo was reduced to a bare hill when the Romans set up a military base at a neighbouring village, which only over time grew into a moderate town. Ugarit was long gone, although Laodicea, just under 10 km to the south, did become one of the major cities of the Roman Levant. The once strong city of Qatna lay empty, and of two later nearby foundations, Emesa and Arethusa, only Emesa appears to have become a sizeable city.

Similarly, many of the once powerful centres of the Iron Age, whether the Phoenician cities, those of the Israelite Kingdom or the Neo-Assyrian empire, suffered in the tumultuous centuries of the first millennium B.C.E. Gath, Tel es-Safi and Zafit may have been the sites of later Roman villages. Beyond the Roman sphere of influence, at Nineveh it seems a small urban community existed, but nothing to reflect its former glory. In Judea, Jerusalem itself only slowly recovered from its sack during the Bar Kokhba war.

So while for the Roman period the settlement system is made up out of many of the same locations as the networks of earlier periods, how the settlements at these locations developed within the Roman period was very different. In other words, how a settlement system functions is determined by more than location alone. In this chapter, the urban system will be analysed as it had started to take shape in the Hellenistic period, and crystallized in the first centuries C.E. The preceding chapters have shown that our knowledge of this urban system has several large lacunae. There is little direct evidence for the economic, demographic and political status of the cities of the Syrian and Arabian provinces. What is available, however, is a reasonable overview of urban sizes and monumentality. By looking at patterns in the latter, combined with geographical analysis, an attempt will be made to reduce these gaps, and shed light on economic, demographic and political developments in the area in the second to third centuries C.E.

3.1.1 Size distributions

Out of the 98 settlements in the region that in this study are considered to have been self-governing cities, 69 have yielded sufficient evidence to allow a size estimate (Table 9). When including town-like settlements – places that are considered to have played a central role locally

but lacked civic autonomy – this goes up to 111 places with a known size out of 219 total. It should be noted however that most of the published evidence relating to the lower-order settlements comes from the Decapolis, the Negev, Galilee and the Antiochene. Therefore, the resultant size distributions do not accurately portray that of the entire region. There must have been considerably more of these small towns and larger villages in the Roman Levant. Osrhoene and Mesopotamia stand out for their low number of known settlements in general, while it is clear that Arabia has the largest total of known non-urban central places lacking a size. In terms of size, the impact of the settlements for which we do have a size is evidently limited for the total built-up area in the region: they add 357 hectares to the far larger figure of 4697 hectares for the self-governing cities, only 7.6% of the combined total.

Province	Urban area (ha)	% GT City Size	Total Places	Sized Places
Syria-Coele	1683.9	35.96%	22	14
Syria-Palestina	976.1	20.85%	25	25
Syria-Phoenice	896.55	19.15%	20	13
Arabia	512.55	10.95%	20	13
Osrhoena	318	6.79%	6	3
Mesopotamia	295	6.30%	3	3
Grand Total	**4768.1**	**100.00%**	**98**	**71**

Table 9 Urban area of self-governing cities per province

This is of course even more true for villages lacking any indication of centrality, adding another 118 settlements for which 82 sizes were collected, only in the focus areas mentioned above. These villages will be discussed in the context of the Antiochene, in the following chapter.

The following figures show the size distribution for the self-governing cities, grouped by province. It is immediately clear that Coele Syria dominated the Levant in terms of urban scale. Antioch alone takes up 10,6% of the total size of all cities combined, and the province contains well over a third of the urban surface area of the entire study area. The differences between Syria Palaestina, Syria Phoenice and Arabia are not as pronounced, making up 23, 15 and 12 % of the whole respectively. The total urban areas of both Osrhoene and Mesopotamia are smaller, reflecting their rather different nature and development path compared to the other provinces. Of course, data limitations are especially visible here, when the presence or absence of a single measurement can double the total size for a province.

Province	Urban area (ha)	% GT City Size	Total Places	Sized Places
Syria-Coele	1817.6	35.31%	61	32
Syria-Palestina	1098.3	21.34%	55	37
Syria-Phoenice	904.25	19.24%	28	14
Arabia	612.05	11.89%	58	22
Osrhoena	334	6.49%	11	5
Mesopotamia	295	5.73%	6	3
Grand Total	**5147.2**	**100.00%**	**219**	**111**

Table 10 Urban area of central places in hectares, including those lacking civic autonomy

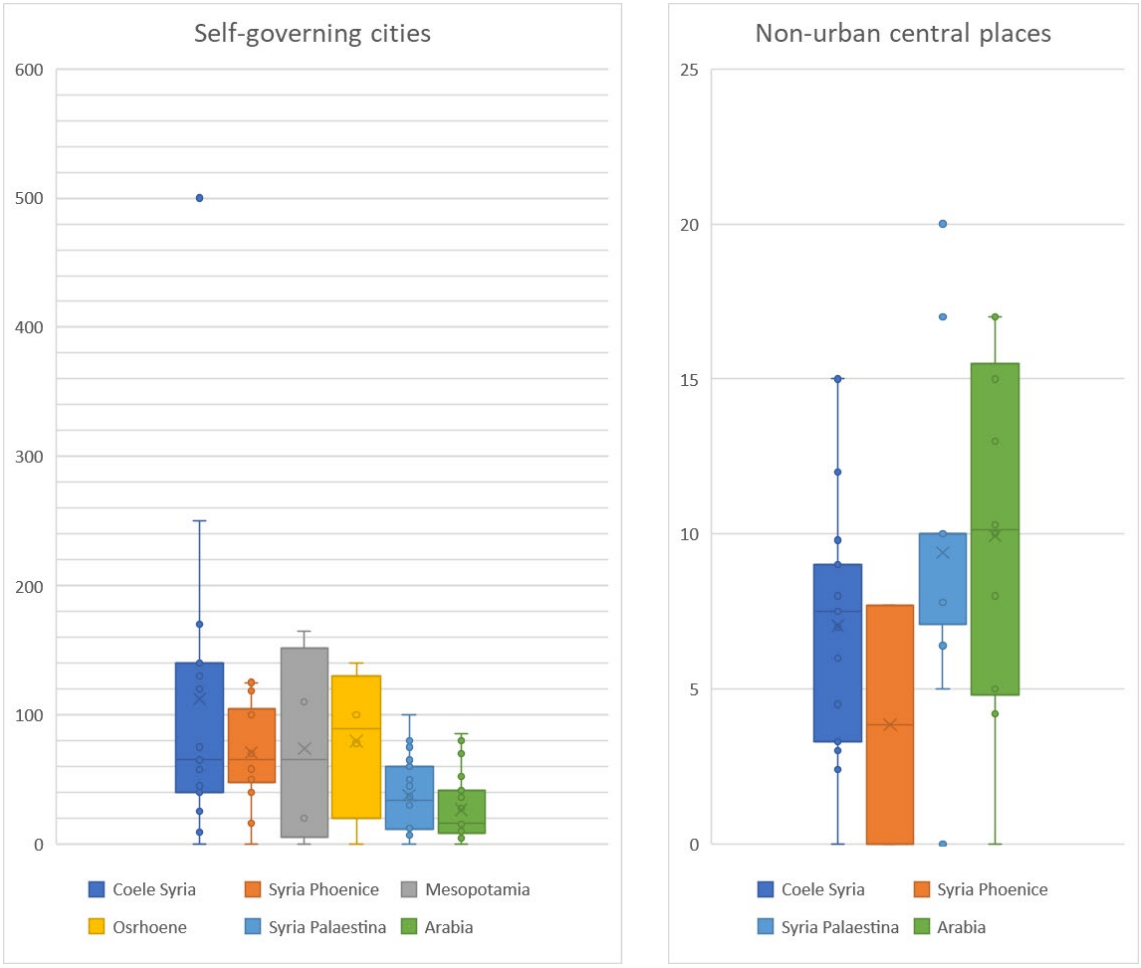


Figure 34 Size distributions per province

3.2 Explaining urban size

3.2.1 Correlating urban size and territory

There is a conceptually very simple approach to define how many people could live in a city: determine the resources produced in the city and the territory around the city, and determine the resources needed per person, and you will have what is called the carrying capacity of that area.

As is immediately obvious, there are numerous complicating factors in getting to that point. To name but a few: what is the size of these urban territories? What type of resources are we talking about? How do we determine resource consumption per capita? What is the urbanisation rate: the percentage of people living in the city compared to those living in the countryside? And then, of course, there are underlying issues that may be just as critical, such as the question what happens when a population approaches or passes this ceiling. Are we talking about Malthusian doom scenarios, or stable equilibria forming around this ceiling? To frame it another way, is demographic growth logarithmic or logistic? And what happens on the ground? How do the inhabitants of a region deal with this limit? To return to the Antiochene hinterland, should we for instance consider the agricultural expansion into the marginal uplands of the Limestone Massifs the result of overpopulation? And, of course, how sustainable is the production of resources in a given region over time?

Not all of these questions can be answered fully, some not at all, depending on the limitations of the source material, and on what assumptions are considered acceptable. We will approach some of these issues in order of complexity. The first and simplest way is to look at the relationship between known urban sizes and the size of surrounding territories. The reason for doing so is that it takes away a number of uncertainties. As will become clear when these are introduced in section 3.2.2,variables such as population density, food consumption per capita and soil productivity have a relatively wide range of uncertainty, each compounding one another. Therefore, initially we will assume that there is a direct relationship between the physical size of a city and its population, leaving aside the specifics. Secondly, it will be assumed that cities were located in urban territories that met the necessary conditions in resource production, and therefore we ignore variation in production levels resulting from variations in soil fertility, looking only at variation in territory size.

The basic concept of site catchments is very straightforward.[650] Each site uses those resources around it that it can reach, and where there are multiple sites close to each other, the territory is

[650] C. Vita-Finzi et al., 'Prehistoric Economy in the Mount Carmel Area of Palestine: Site Catchment Analysis', *Proceedings of the Prehistoric Society* 36 (December 1970): 1–37,

divided between them. The assumption is that sites with access to larger catchments or more resources will be able to sustain a larger population. This fits with the reality of Classical cities insofar as they acted as the administrative centres of their own territories. In the often-suggested Weberian parasitic models for these cities, these cities would then be largely sustained by the extraction of resources from their territory.[651] Furthermore, a larger number of cities with relatively equal status would make equal claims to their surrounding territory when dividing it between them. Looking at official status, in the Roman East there is little to suggest a more complex political hierarchy than that of provincial capitals above cities, with non-urban settlements below them. Even then, the exact nature and political position of capitals remains debated, with the actual impact of the presence of a governor and his staff probably being limited.[652]

Of course, evidence for the extent of territories is somewhat limited for the Near East. Figure 52 (page 243) shows the borders of the territory of Antioch, as determined by Georges Tchalenko and Henri Seyrig. In Antioch and the Antiochene a Caesarian era was adopted, dating from 49 B.C.E., while the surrounding cities of Seleucia, Rhosos, Cyrrhus, Chalcis and Apamea maintained a Seleucid era going back to 312 B.C.E. Laodicea switched to a Caesarian era as well, starting in 48 B.C.E. Based on the different dates used in inscriptions, the borders could be established with a relatively high level of precision in parts of the Limestone Massifs, where nearby villages used different eras, and by approximation towards the north. Only the border with Laodicea remains unclear.[653]

Another city that has offered reliable information is Gerasa, where in the 90s Jacques Seigne located ten rock markings to the east and southeast of the city reading ΠΟΓΕ, initials for the polis of Gerasa. According to Seigne these markers are dated before the third century C.E. and may very well indicate the borders of the polis of Gerasa. Note, however, according to Sartre these may have been property markers, resembling for instance those of the forest estates in the Lebanon mountains. A more typical border stone would have included on each side the name of a bordering polity. Even so, this would indicate that Gerasa's territory extended at least that far

https://doi.org/10.1017/S0079497X00013074; John Bintliff, 'Chapter 13: Settlement and Territory', ed. Graeme Barker, 1999, 505–45.

[651] Moses I. Finley, *The Ancient Economy*, A Chatto and Windus Paperpack 47 (London: Chatto and Windus, 1973), 123–49.

[652] Haensch, *Capita provinciarum*, 372–74, 377–89.

[653] Georges Tchalenko, *Villages antiques de la Syrie du Nord: le massif du Bélus à l'époque romaine*, vol. 3 (Paris: Geuthner, 1953), 11–14; 57 fig. 7.

(i.e. over the wadi Zerqa, instead of along it), but with the possibility that it reached further towards Bostra and Philadelphia (as suggested by Bietenhard).[654]

Unfortunately, only the territories of a handful of towns can be reconstructed on the basis of known archaeological or written evidence. For most cities it is necessary to recreate their territories by theoretical means.

3.2.1.1 Thiessen polygons

The simplest approach to artificially divide an area between a set of points (in this case our settlements), is to create Thiessen polygons. This method draws borders exactly halfway between each point and its neighbours, using Euclidean distance. This means that shapes are created where each originating point is the closest central point to any location within the surrounding shape.

The resulting images (Figure 36, Figure 37, Figure 38 and Figure 39, the red lines) highlight some of the issues inherent to this method. First, the figures are heavily influenced by the presence or absence of a starting point. In other words, if a city is unlocated, or a settlement not interpreted as a self-governing place, this means that a large area is allocated to its neighbours. Second, there clearly is a large divergence between the recreated territories and those for which we have actual information. A brief glance at the application of Thiessen polygons in various fields shows that results can vary: for instance Antrop and van Eetvelde mention a reasonable match between Thiessen polygons and municipal boundaries in 1960s France. Two other studies, one looking at territorial birds, another at farming villages in northeast Thailand, both found that regular Thiessen polygons overestimate the extent of territories.[655]

[654] Jacques Seigne, 'Les Limites Orientale et Méridionale Du Territoire de Gerasa', *Syria* 74 (1997): 121–40; David Kennedy, 'The Identity of Roman Gerasa: An Archaeological Approach', ed. Graeme Clarke and Derek Harrison, *Mediterranean Archeology*, Identities in the Eastern Mediterranean in antiquity : proceedings of a conference held at the Humanities Research Centre in Canberra, 10-12 November, 1997, 11 (1998): 39–69; Seigne, 'Les Limites Orientale et Méridionale Du Territoire de Gerasa', 138–40 appendix by M. Sartre.

[655] Lotte Schlicht, Mihai Valcu, and Bart Kempenaers, 'Thiessen Polygons as a Model for Animal Territory Estimation', *Ibis* 156, no. 1 (1 January 2014): 215–19, https://doi.org/10.1111/ibi.12105; Thomas W. Crawford, 'Spatial Modeling of Village Functional Territories to Support Population-Environment Linkages', in *Linking People, Place, and Policy* (Springer, 2002), 91–111.

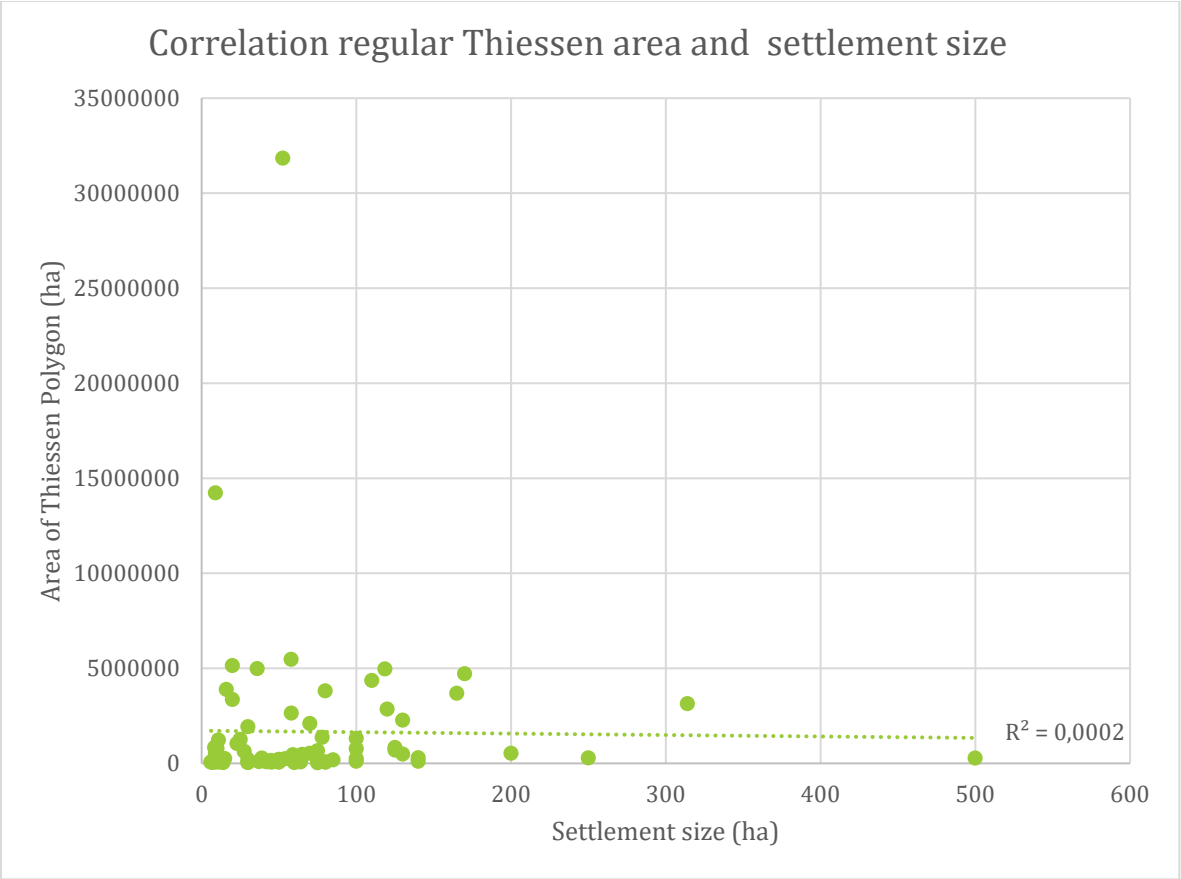


Figure 35 Correlation regular Thiessen area and settlement size

As was perhaps to be expected, in Figure 35 we find that there appears to be no correlation between settlement size and that of its surrounding Thiessen polygon. Naturally, this is exacerbated by the vast territories assigned to the settlements on the boundaries of the study area, or those bordering on the desert or the sea. But even if correcting for those, either by ignoring them, or by including boundary settlements from adjoining study areas and clipping away the sea and low rainfall zones, there is still no noticeable correlation.

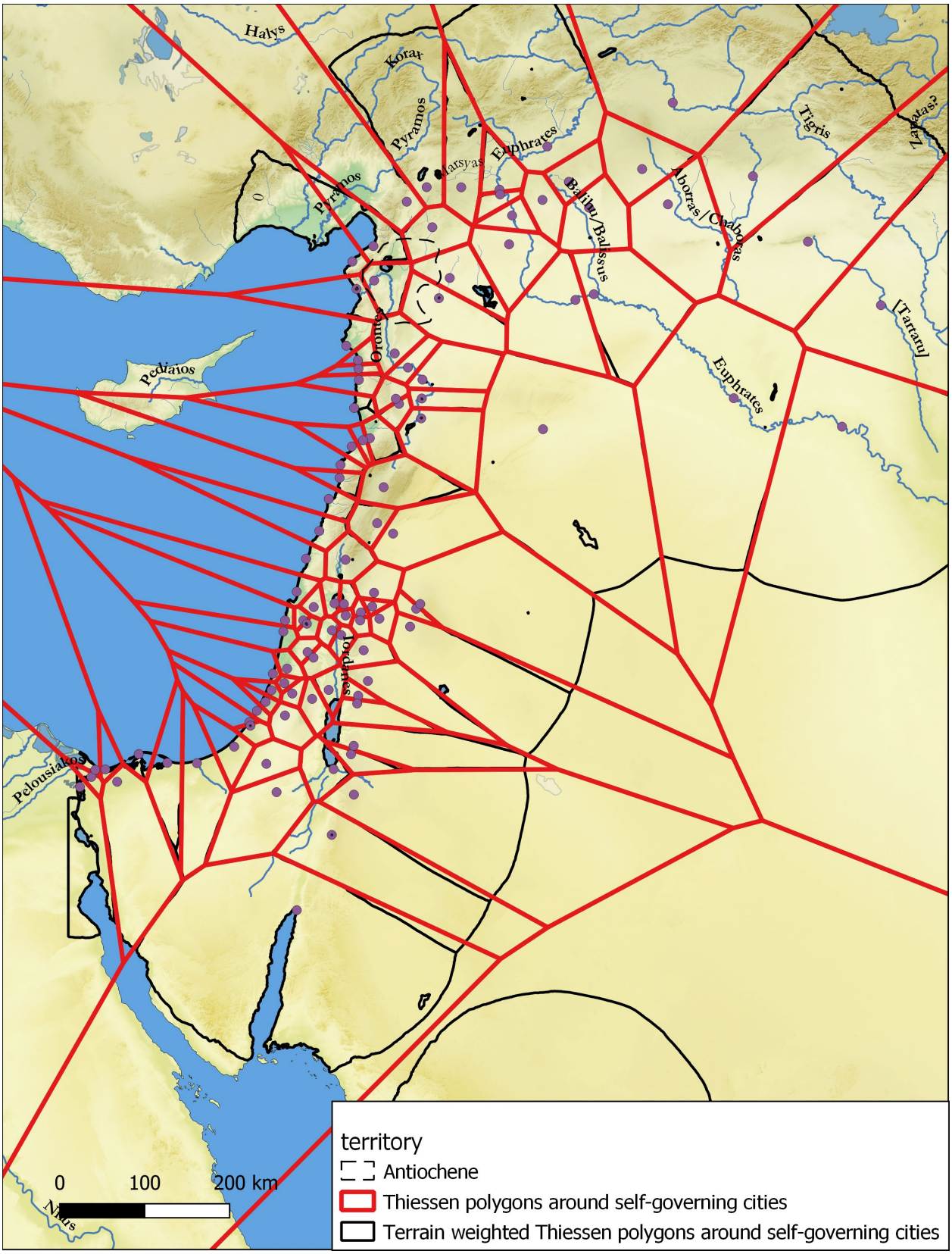


Figure 36 Euclidean and terrain weighted Thiessen polygons around self-governing cities

Figure 37 Thiessen polygons around self-governing cities, clipped by sea and 45 hour flat land travel equivalent

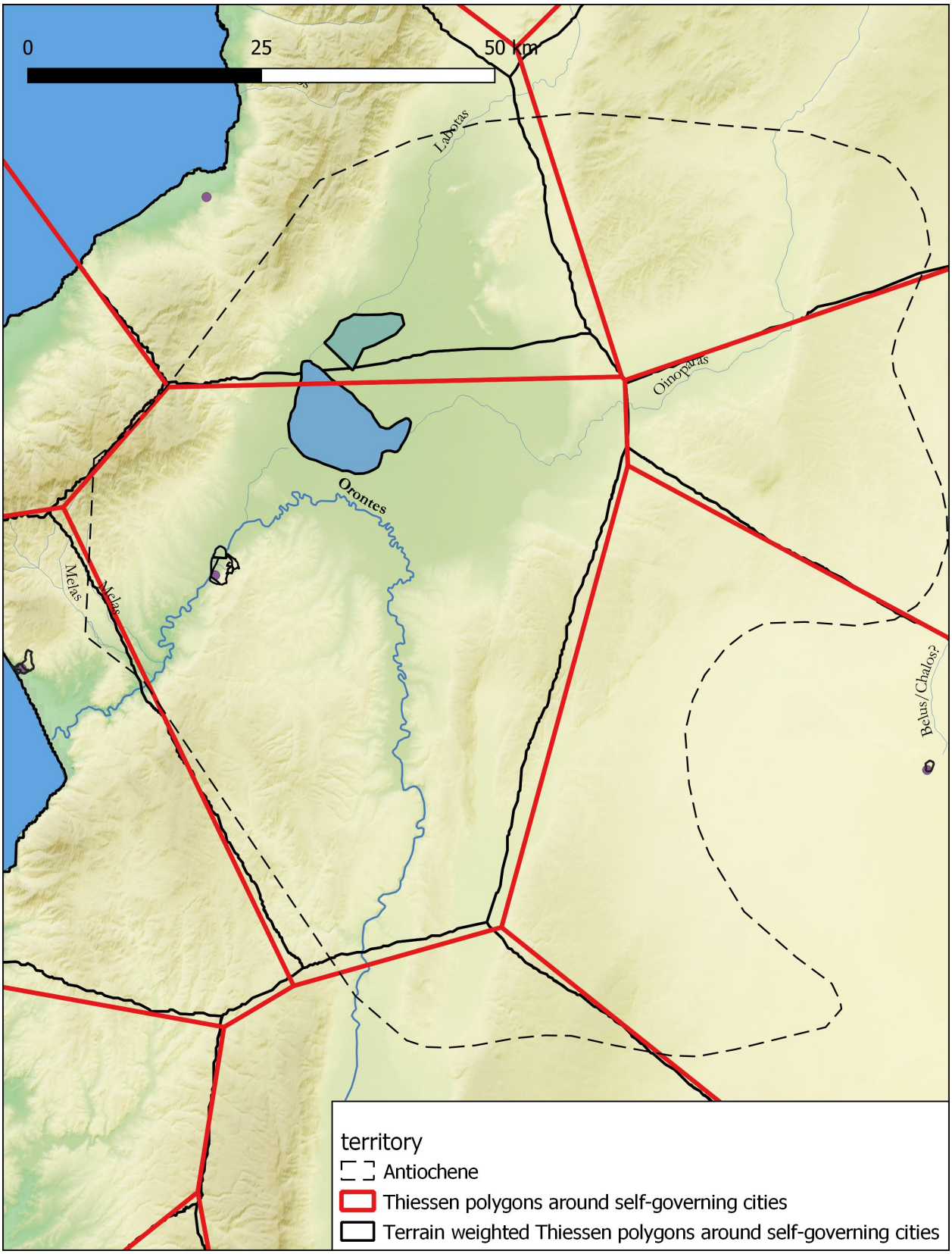


Figure 38 Thiessen polygons compared to reconstructed Antiochene territory

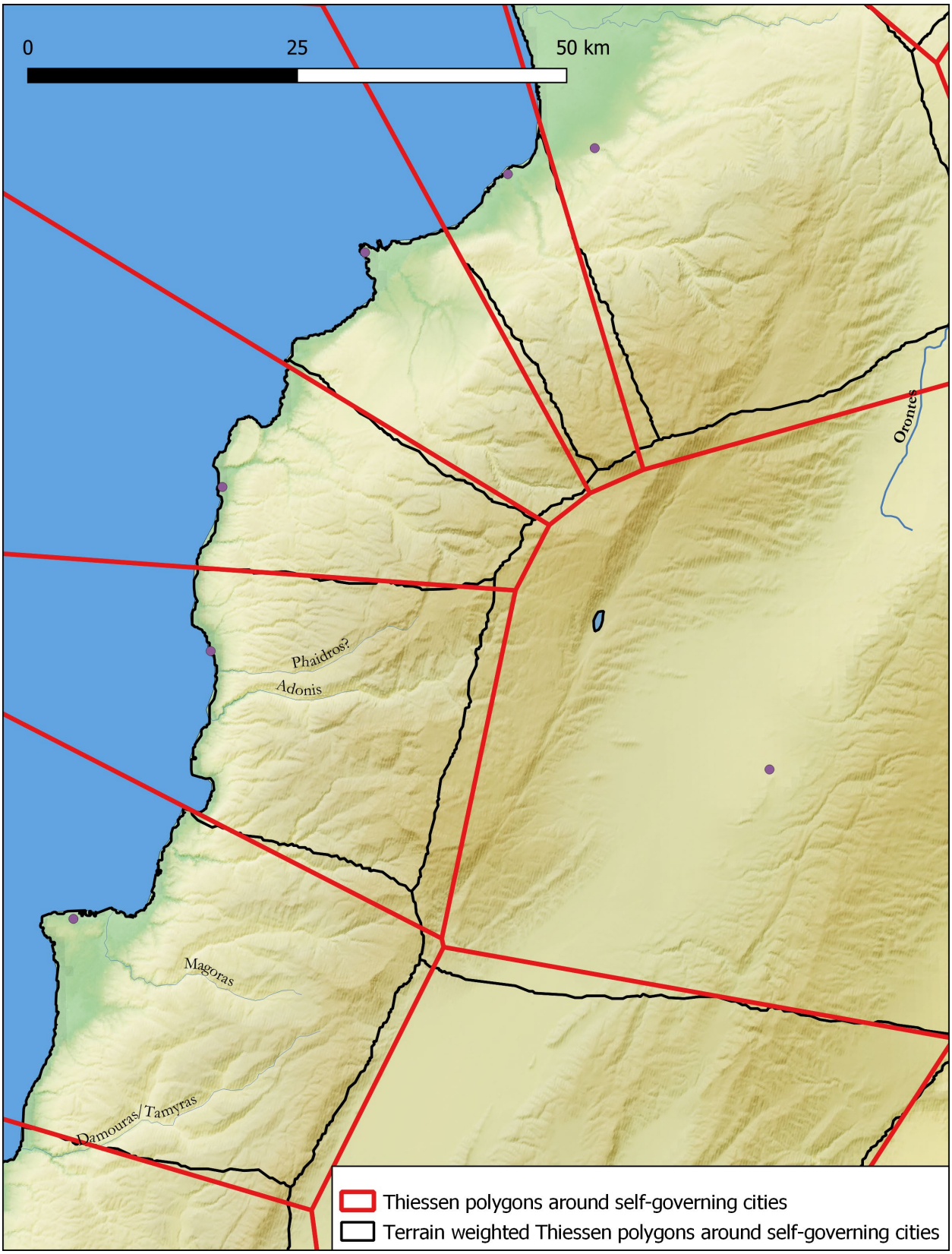


Figure 39 Detail of difference between Euclidean and terrain weighted Thiessen polygons

3.2.1.2 Terrain-weighted distance

Rather than using Euclidean distance, the same exercise could be performed using travel time. The core concept is that by taking obstacles such as elevation, rivers and vegetation into account, one gets a more reliable indication of the potential extent of a territory. The figures above show the reconstructed territories on the basis of Tobler's hiking function (in black, with a maximum travel time of 45 hours). This function, derived from empirical evidence from Imhof in 1950, gives an optimal walking speed of 6 km/hour at a downward slope of 2.86°, and just over 5 km/hour on flat land, quickly decreasing at steeper uphill or downhill inclines. See Figure 40 for expected walking speeds over different degrees of slope.

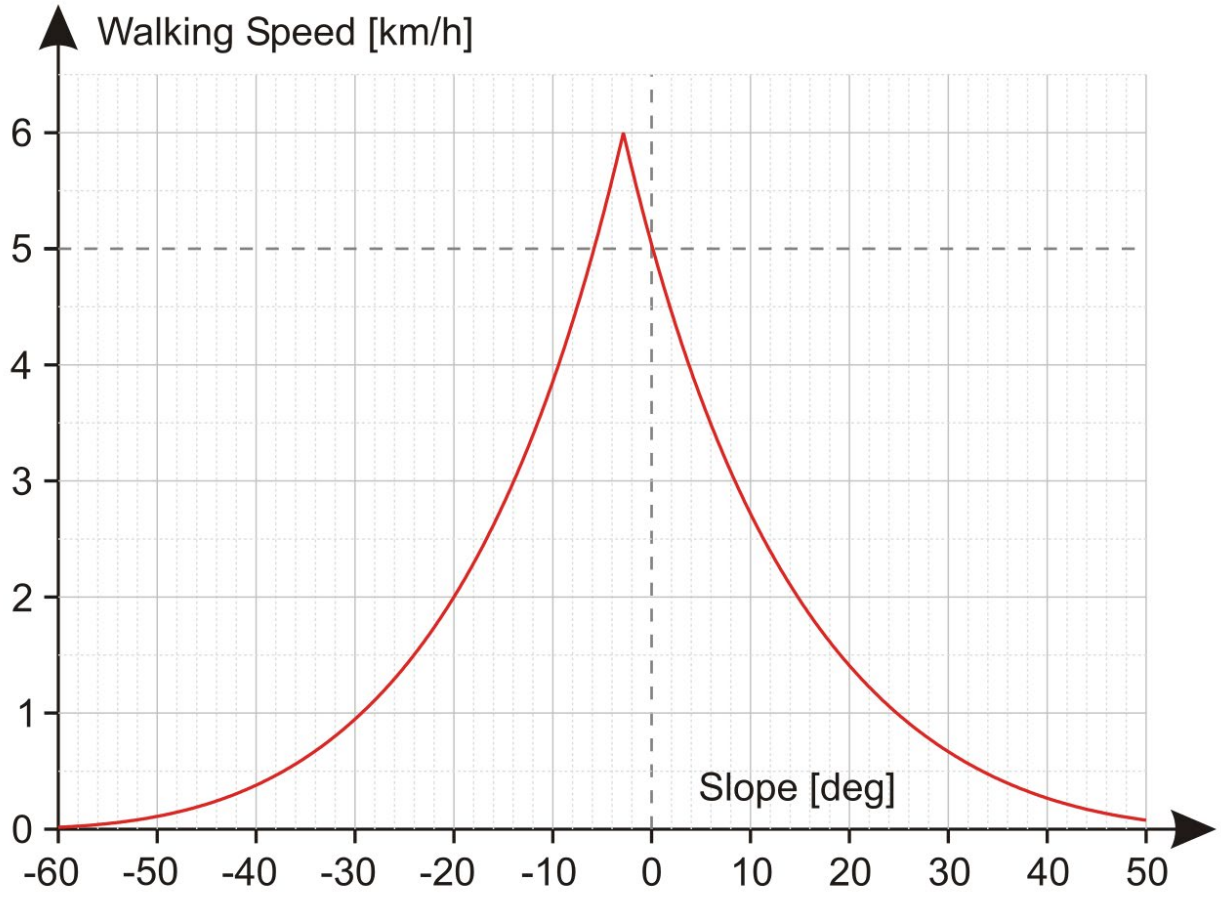


Figure 40 Toblers Hiking Function (credits: By Darekk2 - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=55208352)

Several remarks should be made: the given walking speeds assume the presence of paths. Tobler suggests that off-road hiking speeds should be limited to 60% of the indicated times. In fact, different types of land cover, from agricultural fields with various crops to forest or marshes, will have vastly different effects on travel speed. Studies based on modern-day situations are naturally capable of taking this into account, using actual landcover data and empirical evidence for hiking speeds. In this case, however, neither detailed information on road systems (except a

very limited number of major military roads) nor on landcover is available. Therefore, for these calculations only the effects of elevation differences have been taken into account.

As is clear, the differences from polygons made using Euclidean distances are minimal (except of course for the obvious difference that the territories now stop at the sea), with only specific cases such as the Amanos mountains and the Syrian coastal range causing considerable deviation. A detailed look shows that this result is not because of underestimation of terrain effects, but rather a logical effect of the distances involved. As the isochrone map in figure Figure

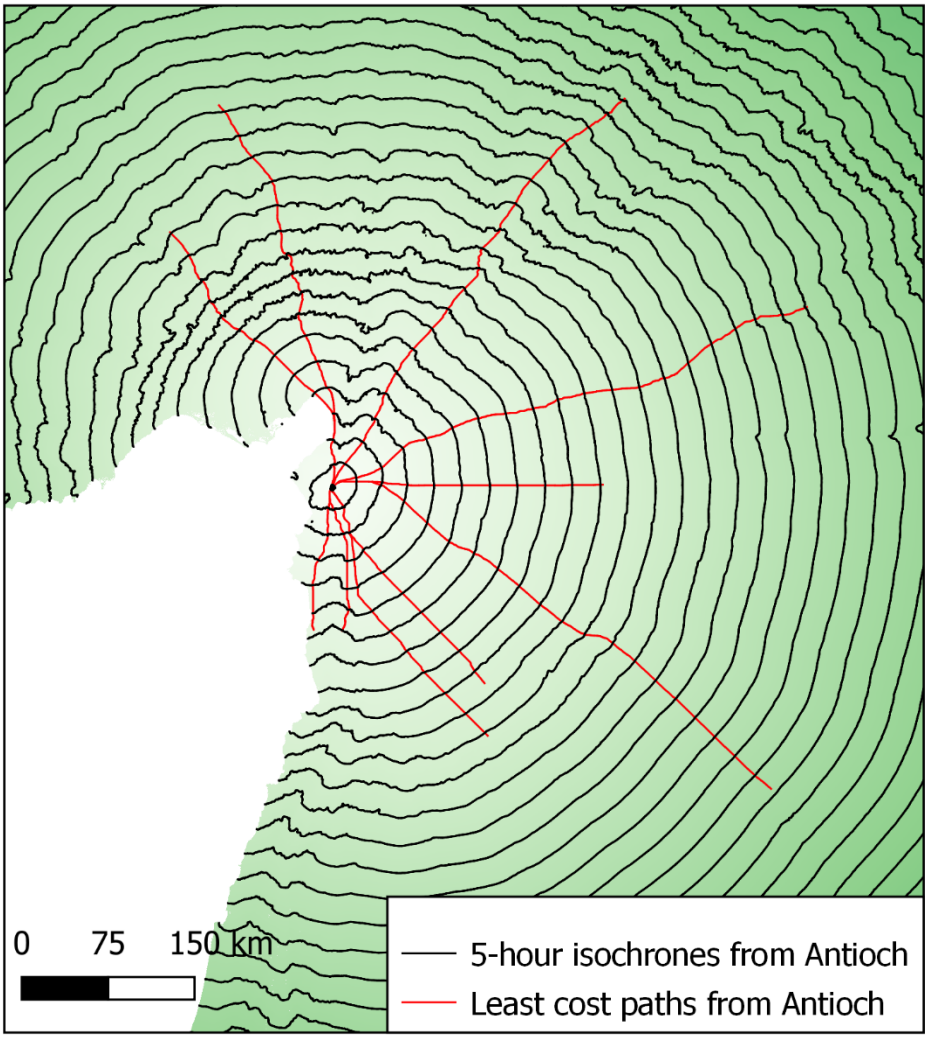


Figure 41 isochrones and least cost paths from Antioch

41 shows, at shorter distances the influence of mountains is very pronounced, while at long distances the isochrones approach a circular Euclidean distance. Over longer distances, the average speed to arrive at any point approaches that of walking over flat land. The explanation lies in the same figure: paths taken from the point of origin (in this case Antioch) to arrive at a random set of locations shows that efforts are made to circumvent high-slope areas. The further away, the more likely it is that there are alternative routes through passes or around mountains

that cost far less time than going straight through them. When more time is spent travelling, the percentage of time lost to detours around obstacles decreases.

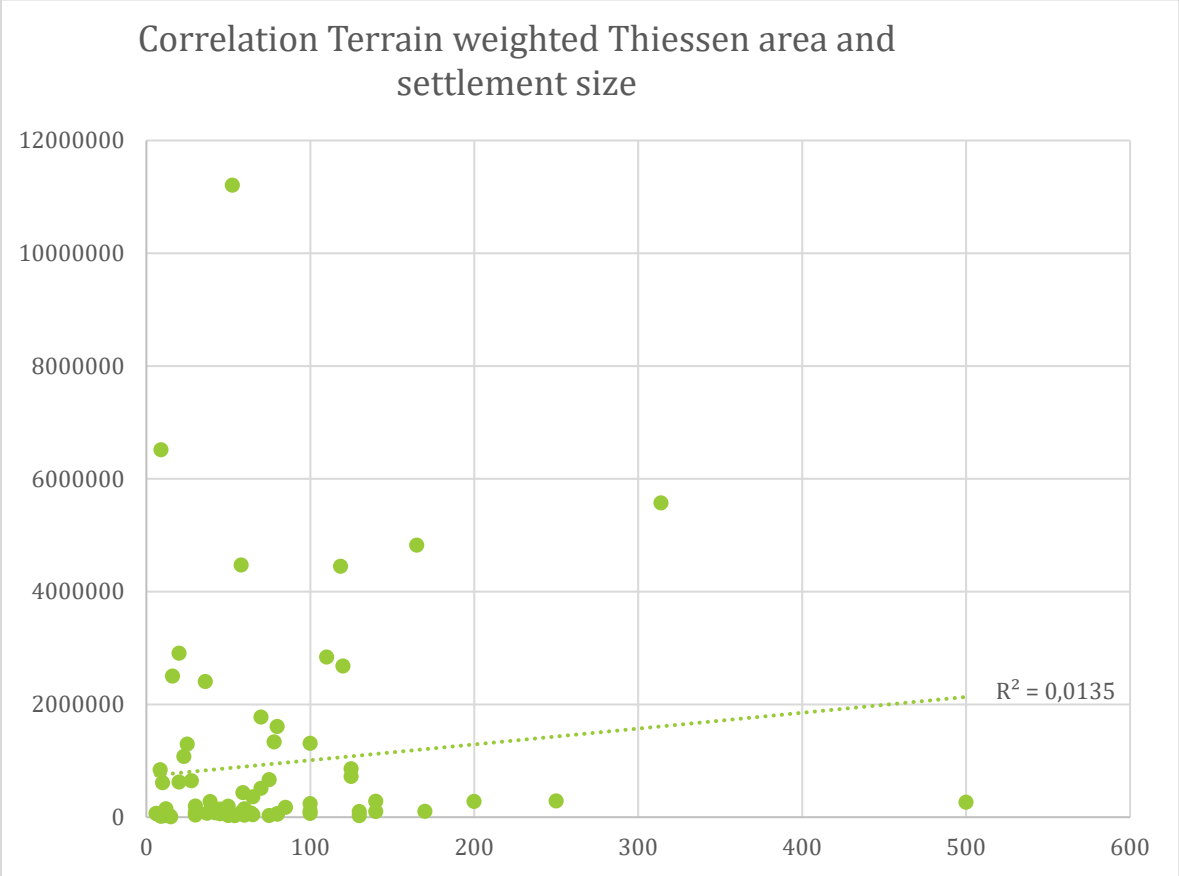


Figure 42 Correlation Terrain weighted Thiessen area and settlement size

As the resulting areas approach those of regular Thiessen polygons, the same conclusions can be drawn as regards the relationship between territory size and urban area: there is none.

3.2.1.3 Market distance

Using isochrones creates the opportunity to look at only those areas reachable within a certain time limit. This links back to the concept of market distance and willingness to travel from a village to farmland. In most circumstances most farmland is located within a 15- to 30-minute radius of a settlement nucleus.[656] Within a hierarchical system, it can be assumed that a central settlement depended for its food provision not only on its direct surroundings, but also on surplus generated by lower-order settlements in its surroundings, in this case the villages within its territory. For the following section, 3.2.2, it is furthermore assumed that only those villages playing a role in primary production for the settlement that lay within such a distance that

[656] Wilkinson et al., 'Structure and Dynamics of Dry-Farming States', 496; John Bintliff, 'Emergent Complexity in Settlement Systems and Urban Transformations', in *Historische Geographie Der Alten Welt, Grundlagen, Erträge, Perspektiven, Festgabe Für Eckart Olshausen.*, ed. U. Fellmeth, P. Guyot, and Holger Sonnabend (Hildesheim, 2007), 57.

allowed travel to the city, the sale of goods and a return trip within a single day. This has been argued for instance by Tony Wilkinson.[657] The commonly accepted maximum figure for such a single-day return trip would be three hours each way, or some 15km radius. As such, the resulting areas could be interpreted as an ideal model for what could have functioned as practical territories.[658] In the following we will describe this area as the 'market zone' of the city. In reality of course, in larger political territories one should also expect surplus extraction, albeit perhaps less efficiently, from rural populations further away as well, while it is also clear that people could also be expected to be willing to travel further to sell their goods if necessary.

3.2.2 Soil productivity and food consumption

Territory size or market area alone does not give an explanation for urban size. It has, however, given us the basis for further evaluation of the potential carrying capacity of those territories: even if a direct correlation cannot be found between territory size and population, at least the likely natural upper limits can be defined for an urban population sustained by production in its direct hinterland.

Similar calculations of the upper limit of a population have been made often enough in any field that concerns itself with population levels, originating in range management (ignoring 19th-century use of the term 'carrying capacity' simply meaning payload), and adopted in the 50s and 60s of the past century in the fields of anthropology, as well as archaeology and history.[659] It is perhaps, as Sayre puts it, a "very dull tool for understanding the complex interrelations of humans with the face of the earth"[660], but in demography for ancient history one has to resort to simple methods that get the job done.[661]

While in history and anthropology carrying capacity is defined as a property of a specific territory (how many people can be supported by that territory), in ecology it is a property of population (at what population density does population growth equal mortality).[662] Leaving the specifics of the latter aside, the implicit assumption is exactly the same: at the maximum population for a given territory (which is a density), no further growth is possible. At a higher density, mortality would increase until the population returns to the maximum. Perhaps more

[657] Wilkinson et al., 'Structure and Dynamics of Dry-Farming States'.
[658] Bintliff, 'Going to Market in Antiquity'.
[659] Stephen B. Brush, 'The Concept of Carrying Capacity for Systems of Shifting Cultivation1', *American Anthropologist* 77, no. 4 (1 December 1975): 799–811, https://doi.org/10.1525/aa.1975.77.4.02a00040; Nathan F. Sayre, 'The Genesis, History, and Limits of Carrying Capacity', *Annals of the Association of American Geographers* 98, no. 1 (5 February 2008): 120–28, https://doi.org/10.1080/00045600701734356.
[660] Sayre, 'The Genesis, History, and Limits of Carrying Capacity', 132.
[661] Mogens Herman Hansen, *The Shotgun Method the Demography of the Ancient Greek City-State Culture*, Fordyce W. Mitchel Memorial Lecture Series (Columbia: University of Missouri Press, 2006), 2.
[662] Robert Sallares, *The Ecology of the Ancient Greek World* (Cornell University Press, 1991), 74–79.

interesting is that Sallares' calculations for 4th-century B.C.E. Attica with the former method result in population densities that match those known from late 19th-century Greece, a point at which population growth in the recently formed country resulted in overpopulation, and subsequently, food imports and emigration.[663]

Elio Lo Cascio and Paolo Malanima give a clear expression of carrying capacity as area per person.[664] In the following formula it has been rewritten to give the maximum total population to be supported by a known area:

$$p_{tot} = \frac{g \cdot c \cdot A}{f}$$

This gives us, as mentioned earlier, the following variables that need to be determined, which will be explained in the following paragraphs. Firstly, A, the size of the productive territory. As discussed above, a 3-hour walking distance around each settlement will be used to create an equal basis for comparison. Secondly, the potential grain yield (g) will be determined within that territory, minus the amount of seed needed for reseeding.. There are a considerable number of resources that play a vital role for ancient society, if we consider for instance Malanima's views on energy consumption in the ancient world in general, or a recent article by Jansen et al., reminding us of the importance of fuel for heating.[665] In general, for this region, the presence of water and food is the most limiting condition for survival. Calculations on the basis of water supply tend to be dramatically inaccurate, but in combination with food resources it is possible to create plausible ranges. Thirdly, we need to know the amount of land under fallow (c). As Lo Cascio and Malanima state, for a two-field system, with half the land under cultivation, c would be 0.5; for a three-field system, with one third of the land under fallow, this would be 0.66.[666] Fourthly, we need a figure for food consumed per capita (f) (see 3.2.2.2 below). Finally, as the combination of production and consumptionarrives at the total population for the whole territory (p_{tot}), it is necessary to look at the ratio between people living within the city and outside of it, to propose the maximum sustainable urban population.

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[663] Sallares, 79.

[664] Elio Lo Cascio and Paolo Malanima, 'Cycles and Stability. Italian Population before the Demographic Transition (225 B.C. - A.D. 1900)', *SE*, 2005, 20, https://doi.org/10.1410/20933; Ellen Janssen et al., 'Fuel for Debating Ancient Economies. Calculating Wood Consumption at Urban Scale in Roman Imperial Times', *Journal of Archaeological Science: Reports* 11 (February 2017): 592–99, https://doi.org/10.1016/j.jasrep.2016.12.029.

[665] Paolo Malanima, 'Energy Consumption and Energy Crisis in Roman World', *The Ancient Mediterranean Environment between Science and History*, 2011, 13–36; Janssen et al., 'Fuel for Debating Ancient Economies. Calculating Wood Consumption at Urban Scale in Roman Imperial Times'.

[666] Lo Cascio and Malanima, 'Cycles and Stability. Italian Population before the Demographic Transition (225 B.C. - A.D. 1900)', 20.

3.2.2.1 Agricultural yield

For all the following calculations of agricultural yield, the focus will lie on wheat cultivation. In reality, as also discussed below when looking at food consumption, it is quite possible that barley was the preferred crop, being more suited to cultivation in a drier, warmer climate. Additionally, part of the land will have been used for animal husbandry, olives and viticulture. It is likely that transhumance was practiced allowing the use of more marginal steppe or upland areas.[667] On the other hand, Paul Halstead makes the interesting point that with denucleated settlement it would be just as viable to keep animals locally. This would make manure from the animals easily available and intensive agriculture possible. It would, however, necessitate the growth of fodder crops, although rotating food crops for fodder rather than bare fallowing would reduce the amount of land required for this purpose.[668] Of course, there is also the question to what degree fertilisation was necessary: for instance for Upper Mesopotamian and other semi-arid soils, water resources and soil workability were larger constraining factors than nitrogen or phosphorus levels.[669] As it cannot be clearly defined to what degree animals competed for space and food with humans, and to which degree this was offset by the labour and food they provided, only wheat yields will be considered.

Araus et al. clearly illustrate that there is a range of methods to estimate agricultural yields for ancient agriculture, where there is an inverse relationship between the uncertainties around the underlying assumptions and the complexity of the biology needed to make the estimate. Besides using information available in historical written sources, methods range from entirely made-up, speculative estimates that completely disregard the crops used, through using modern yields and experimental archaeology, to calculations based either on grain size or chemical properties, such as carbon isotope composition.[670] The most reliable estimates come from the latter method, but of course, this is only applicable in a handful of case studies where the carbon composition of recovered grains has been analysed.[671] This method can also be used to check the potential validity of estimates made using simpler methods. So, in tables 4 of both Ferrio et al. 2012 and Araus et al. 2007, there are yield estimates based on carbon isotope discrimination in several Neolithic periods at Tell Halula and Akarçay Tepe, compared with modern yields in Raqqa and Aleppo. Here, we get ranges for naked wheat from 700 to 1800 kg per hectare, with most likely results around 1000 to 1200 kg per hectare, compared to 1500 kg per hectare for modern yields

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667 Tony J. Wilkinson, *Archaeological Landscapes of the Near East* (University of Arizona Press, 2003), 218.
668 Wilkinson et al., 'Structure and Dynamics of Dry-Farming States', 64–65.
669 José Luis Araus et al., 'Productivity in Prehistoric Agriculture: Physiological Models for the Quantification of Cereal Yields as an Alternative to Traditional Approaches', *Journal of Archaeological Science* 30, no. 6 (1 June 2003): 691, https://doi.org/10.1016/S0305-4403(02)00240-6.
670 Araus et al., 690.
671 Araus et al., 689.

in that region (this is a lowered estimation from that given in 2007, based on potential grain size).[672]

Eva Kaptijn compared data on 19th- and early 20th-century crop yields in parts of Israel and the Jordan Valley. She mentions yields of 600 to 780 kg per hectare for a single 20-hectare farm in the Jezreel valley in the 1930s, and around 1000 kg per hectare in the Zerqa triangle in the Jordan Valley, under irrigated conditions, in the same period. In comparison, in 1965 irrigated yields in the Jordan valley lay around 1000 to 1200 kg/ha, while non-irrigated yields in the upper Jordan Valley were as low as 350 kg/ha.[673] It is important to note that in a low-rainfall zone such as the Jordan Valley, better yields could clearly be obtained through irrigation than in wetter zones using rainfed agriculture.

To avoid soil depletion and maintain long-term crop health, each year part of the agricultural land had to lie fallow. While in wetter climates fallow is mainly important for restoration of nutrient levels in the soil, such as nitrogen, at lower precipitation levels (below 300 mm per annum), it is also necessary to increase or maintain soil wetness. While manuring and alternate cropping with nitrogen-fixing plants may reduce time under fallow, in the drier parts of the study region biennial fallowing would still be necessary under rainfed conditions.[674]

Lo Cascio and Malanima argue that more complex regimes such as a three-field system were already being used in Italy in Roman times, meaning that only a third, rather than half of the land lay fallow.[675] It is not unthinkable that such techniques were also practiced in the east. Note that such a reduction would imply a 32% increase in annual production. In this context we should also consider Halstead's argument, that simple bare fallowing pays off for extensive cultivation of more distant fields, which makes sense in nucleated settlement systems of the more recent past. But as will be discussed in the following chapter for instance for the Antiochene, or Roman Syria in general, from the late Iron Age onwards the countryside was characterised by denucleated settlement. As such, with shorter distances to fields, more intensive agricultural practices, including manuring and weeding and more labour-intensive cultivation of legumes as

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[672] José Luis Araus et al., 'The Historical Perspective of Dryland Agriculture: Lessons Learned from 10 000 Years of Wheat Cultivation', *Journal of Experimental Botany* 58, no. 2 (1 January 2007): 137 table 4, https://doi.org/10.1093/jxb/erl133; J. P. Ferrio et al., 'Agricultural Expansion and Settlement Economy in Tell Halula (Mid-Euphrates Valley): A Diachronic Study from Early Neolithic to Present', *Journal of Arid Environments*, Ancient Agriculture in the Middle East, 86 (1 November 2012): 109 table 4, https://doi.org/10.1016/j.jaridenv.2011.09.011.

[673] E. Kaptijn, *Life on the Watershed. Reconstructing Subsistence in a Steppe Region Using Archaeological Survey a Diachronic Perspective on Habitation in the Jordan Valley* (Leiden: Sidestone Press, 2009), 346, 353.

[674] Sallares, *The Ecology of the Ancient Greek World*.

[675] Lo Cascio and Malanima, 'Cycles and Stability. Italian Population before the Demographic Transition (225 B.C. - A.D. 1900)', 21.

a rotation for cereals was possible, even likely.[676] Even so, we will for now maintain the more commonly accepted view that a simple two-field system was used in the East, where half of the cultivable land lay fallow.

Before looking at consumption, it is important to subtract the amount of seed saved for reseeding. Both Sallares and Lo Cascio and Malanima give figures between 100 and 150 kg of seed needed per hectare of land. As Sallares indicates, while 100 kg per hectare is suggested in a modern context, a higher sowing rate of 126 kg/ha (based on 5 modii per iugerum as suggested by Columella) would be sensible, considering lower seed quality. But note as well that in drier regions we often find lower seed rates being used.[677]

Looking at total yield, Sallares expects "that cereal yields in the Mediterranean in the past could have exceeded 650 kg/ha only rarely, except on very good soils."[678] Overall, Sallares' estimates appear to lie on the lower end of the spectrum, with potential rainfed yields as high as 1800 kg/ha based on grain characteristics. Considering, however, that earlier 20th-century irrigated yields were considerably lower than that, a yield of 1000 kg per hectare seems a reasonable upper boundary for rainfed cereal yields. Another method to estimate crop yields is to derive them from satellite-based vegetation indices, which have the advantage of giving estimates for a wider geographical area, but naturally only give current information for the date the image was made. By looking at parts of the light spectrum reflected by vegetation, it is possible to determine such things as area under cultivation, crop health and the like. Numerous studies show the possibility to translate this to crop yield in a modern context.[679] In this section, a dataset provided by the United Nations Food and Agricultural Organisation (FAO) has been used, called the Global Agro-Ecological Zones Data Portal (GAEZ). The FAO created this database to calculate actual agricultural yields on a global level based on satellite data, and from that (together with additional data such as soil composition) calculate potential yields under different conditions. The model is additionally based on a number of variables for which the FAO

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[676] Halstead, 'Traditional and Ancient Rural Economy in Mediterranean Europe: Plus Ça Change?', 61–66.
[677] Lo Cascio and Malanima, 'Cycles and Stability. Italian Population before the Demographic Transition (225 B.C. - A.D. 1900)', 20; Sallares, *The Ecology of the Ancient Greek World*, 374; Richard Duncan-Jones, *The Economy of the Roman Empire: Quantitative Studies* (Cambridge: University Press, 1982), 49, 371; Columella, *RR*, trans. Harrison Boyd Ash, Loeb Classical Library 361, 1941, II.9, II.12.1, III.3.4.
[678] Sallares, *The Ecology of the Ancient Greek World*, 389.
[679] See for instance: M. S. Rasmussen, 'Developing Simple, Operational, Consistent NDVI-Vegetation Models by Applying Environmental and Climatic Information. Part II: Crop Yield Assessment', *International Journal of Remote Sensing* 19, no. 1 (1 January 1998): 119–39, https://doi.org/10.1080/014311698216468; M. P. Labus et al., 'Wheat Yield Estimates Using Multi-Temporal NDVI Satellite Imagery', *International Journal of Remote Sensing* 23, no. 20 (1 January 2002): 4169–80, https://doi.org/10.1080/01431160110107653; Paul C. Doraiswamy et al., 'Application of MODIS Derived Parameters for Regional Crop Yield Assessment', *Remote Sensing of Environment* 97, no. 2 (30 July 2005): 192–202, https://doi.org/10.1016/j.rse.2005.03.015; M. S. Mkhabela et al., 'Crop Yield Forecasting on the Canadian Prairies Using MODIS NDVI Data', *Agricultural and Forest Meteorology* 151, no. 3 (15 March 2011): 385–93, https://doi.org/10.1016/j.agrformet.2010.11.012.

provides three different scenarios describing cultivar types and farming methods, ranging from 'low-level inputs/traditional management' to 'high-level inputs/advanced managment'. The scenario which the FAO calls 'low input' most closely approaches Classical agriculture, working without mechanical means and using older cultivars. Additionally, the applied fallow rate is in fact higher than suggested above, with 60% land under fallow for most soil types in the region, and even higher at 75% required fallow on for instance xerosols (desert soil) and lithosols.[680] The data provided is of a far lower spatial resolution than could be achieved by calculating cereal yields directly from vegetation index data, but because of the large scale of the study area a higher resolution would be redundant. Compared datasets were a: modern (year 2000) wheat production, both rain-fed, irrigated, and combined, and b: potential rain-fed wheat production at low input, both in general and within the bounds of currently used agricultural land. The year 2000 production estimates were based on remote sensing data, corrected to correspond to national and regional production statistics.[681]

Within the study region, for low input, potential rain-fed wheat the yield range lies between 0 up to 1975 kg/ha (Figure 43). The mean lies around 308 kg/ha with a standard deviation of 459 kg/ha (Table 11). Within the direct market zones of cities, the distribution is naturally different, as most cities do not lie within the vast deserts that are part of this region (once again highlighting the gravitation of human settlement to ecologically preferable areas). So, only desert cities such as Aila, Timna, Hegra and Zoara have an average cereal production of 0, while the highest city has a potential territorial production of 1752 kg/ha (Antoninopolis, in upper Mesopotamia), and the runners-up in quite diverse locations (Gerar, Ioppe, Chalcis ad Belum and Caesarea Maritima) have values around 1450 kg/ha. The mean for market zone production lies at 605 kg/ha, with a standard deviation of 405 kg/ha (the median lies at 521 kg/ha). About 65% of the settlements lie within one standard deviation, in other words, have a yield figure

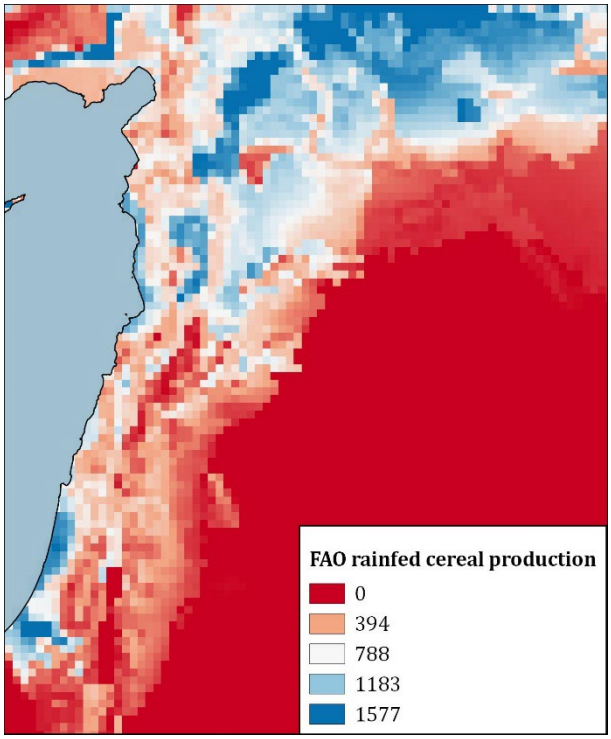


Figure 43 FAO low input rainfed cereal production (kg/ha)

[680] G. Fischer et al., 'Global Agro-Ecological Zones (GAEZ v3.0)- Model Documentation', 2012, 56, 83–84, appendix 6-4, http://www.fao.org/fileadmin/user_upload/gaez/docs/GAEZ_Model_Documentation.pdf.
[681] Fischer et al., 49–53, 56, 89–93.

between 200 and 1010 kg/ha. Considering this, these yields lie on the higher end of the likely spectrum given above, but well within the potential suggested by Ferrio and Araus et al.

For the sake of illustration, year 2000 yields show the vast improvements attained by modern agriculture, with a combination of better cultivars, irrigation, artificial fertilizers, crop rotation, and mechanisation. With modern techniques, the regional maximum lies over four times as high, at 8090 kg/ha, which appears to be an outlier in Lebanon. Even so, the mean of 537 kg/ha and a standard deviation of 975 kg/ha show that production potential has improved considerably with modern agriculture. Within our urban territories, the range lies between 0 and 3980 kg/ha, with an average at 1250 kg/ha, and a standard deviation of 880 kg/ha.

	Minimum	Maximum	Mean	St. Dev.
Low input – regional yields	0	1,975	308	459
Low input – city yields	0	1,752	605	405
Year 2000 – regional yields	0	8,090	537	975
Year 2000 – city yields	0	3980	1250	880

Table 11 FAO yield data within the study area

3.2.2.2 Food consumption and population density

This brings us to the final coefficient needed to establish carrying capacity: food consumption. This is, as Lo Cascio and Malanima write, probably the least doubtful variable. It is, firstly, based on the required caloric intake per person, which on average for adults lies between 2000 and 3000 kilocalories. Jongman considered average caloric needs per gender and age group in more detail, to arrive at an average of 2000 kcal, assuming a high number of young people for the Roman population (based on UN life tables, model south, with a life expectancy at birth of 25 years).[682] This is essentially the minimum subsistence level. If the caloric intake is lower than expenditure, vulnerability to disease increases. Eventually, starvation sets in.[683]

In literature, the required caloric intake is usually translated into an amount of cereals consumed per person. The actual diet of the inhabitants of the Roman empire will likely have been far more diverse, not in the least because a purely cereal-based diet would lead to significant deficiencies. As Jongman summarises, perhaps as much as half the calories of the basic diet came from wine (apparently, about a modern bottle a day per person) and olive oil. This seems an unlikely high amount, but at least it illustrates the potential of other nutritional

[682] Willem M. Jongman, 'The Early Roman Empire: Consumption', in *The Cambridge Economic History of the Greco-Roman World*, ed. Walter Scheidel et al. (Cambridge: Cambridge University Press, 2008), 599.
[683] Jongman, 598–99.

sources. Furthermore, at least in Italy, there was a large increase in the consumption of meat from the Late Republic onwards.[684] It is also clear that fish (and fish sauce) likely played a large role in Roman Levantine diets, with plenty of written and pictorial evidence for fishing-related activities. As also suggested by Justin Lev-Tov, sheep and goat meat played a large role in Palestine, and with Roman influence the consumption of fish also increased in prominence, with marine fish consumed in communities well away from the sea.[685] Kevin Butcher also highlights a taste for imported fish-related goods in some of the coastal cities of Syria, based on fish or fish-sauce amphorae.[686]

Even so, in the following we assume a purely cereal-based diet as a baseline. To arrive at an equal number of calories from wine and olive oil for the part of the diet covered by those foodstuffs would require significantly less land than cereal cultivation. Ignoring fish and meat consumption, that gives us the most basic situation, where modifications in the diet would likely result in a higher population cap. In numbers, this is usually translated to 250 kg of cereal-equivalent per person per year. To name one example, Magen Broshi indicates that somewhere around 180 to 200 kgs of wheat were allotted to labourers and soldiers in antiquity. In comparison, he gives figures for two Arab villages in the Galilee in 1930, consuming 190 and 237 kg per person respectively. He therefore gives 200 as minimum, but this would result in malnutrition, and therefore he uses 250 kg as a minimal average.[687] Of course, the exact amount of wheat also hinges on the calorific value of a kg of cereals (and of course, whether these were wheat or barley). Consider for instance Rinse Willet's remarks about different figures used by Garnsey and Engels, with the first using 3320-3330 calories per kg of wheat and 3320 calories for a kg of barley based on modern nutritional values, while Engels gives a far lower figure for barley, at 2158 kilocalories.[688] Garnsey's figures would put the required cereals per person just under 220 kg/ha, Engels' figure raises this to just over 390 kg. Assuming, however, that the nutritional value of barley did not differ as strongly from modern cultivars as Engels suggests, and for now, with a preference for wheat, the 250 kg average seems an acceptable figure.

Table 12 summarises the variables above, and how that translates into a low- and high-count scenario for carrying capacity. For obvious reasons a higher food consumption rate leads to a low-count scenario. Additionally, the final column shows the impact of each variable on the final

[684] Jongman, 602–5.
[685] Justin Lev-Tov, '"Upon What Meat Doth This Our Caesar Feed…?"1 A Dietary Perspective on Hellenistic and Roman Influence in Palestine', n.d., 27.
[686] Butcher, *Roman Syria and the Near East*, 187.
[687] Broshi, 'The Population of Western Palestine in the Roman-Byzantine Period', 7.
[688] Rinse Willet, 'Whirlwind of Numbers. Demographic Experiments for Roman Corinth', *Ancient Society* 42 (2012): 130–31; Peter Garnsey, 'Mass Diet and Nutrition in the City of Rome', in *Nourrir La Plèbe. Actes Du Colloque Tenu a Genève Les*, vol. 28, 1991, 71–73.

result. For yield, consumption, fallow and the final carrying capacity, impact is calculated by simply dividing the higher by the lower value for each variable. The impact of reseed rate is far lower, as it is only a subtraction from the final yield. Therefore, its actual impact is the difference between the maximum and minimum of carrying capacity and that of yield, consumption and fallow. Essentially, this only quantifies the intuitively obvious fact that the larger the difference between the lower and higher estimates for a variable, the more it will impact the end result.

		low	high	mean	impact factor
yield	kg/ha	500	1000	750	**39%**
consumption	kg/person	300	200	250	**29%**
fallow		50%	66%	58%	**26%**
reseed	kg/ha	150	100	125	**5%**
car. cap.	person/ha	0.58	2.97	1.45	**100%**

Table 12 Impact of variables

Table 13 shows the effects of different yield rates on carrying capacity when keeping fallow and reseed rate constant. The seed-yield ratio has also been added for the sake of comparison to the ancient agronomists, as this is the typical way in which agricultural yield is expressed in ancient sources.[689] If Halstead is right that a 6:1 yield ratio is conceivable for medium or hilly soils, that gives a carrying capacity of 1.25 people per hectare. Compare also Mario Liverani, suggesting that Upper Mesopotamian yields were around 8:1 to 10:1, double that of Mediterranean rates.[690] Essentially, these tables show that a rule of thumb of one person per hectare, that lies at the basis of typical food production estimates for the Roman world, is indeed a safe baseline. Still, this is also quite pessimistic considering what it implies about the underlying assumptions: grain yields at around a third of the potential for ancient grain types, an entirely cereal-based diet, and a simple two-field system. Considering that, carrying capacity as suggested by Malanima (after Forni Marcone) from 1.5 to 2 people per hectare may not be farfetched.[691]

[689] See for instance Varro, *RR*, trans. W. D. Hooper and Harrison Boyd Ash, Loeb Classical Library 283 (Harvard University Press, 1934), I.44.1; Columella, *RR*, II.12.1.
[690] Mario Liverani, in Wilkinson et al., 'Structure and Dynamics of Dry-Farming States', 508.
[691] Malanima, 'Energy Consumption and Energy Crisis in Roman World', appendix.

yield	reseed	yield-seed ratio	consumption	fallow	carrying capacity per hectare
300	125	2.4 : 1	250	0.5	0.35
400	125	3.2 : 1	250	0.5	0.55
500	125	4 : 1	250	0.5	0.75
600	125	4.8 : 1	250	0.5	0.95
650	125	5.2 : 1	250	0.5	1.05
700	125	5.6 : 1	250	0.5	1.15
750	126	6 : 1	250	0.5	1.25
800	125	6.4 : 1	250	0.5	1.35
900	125	7.2 : 1	250	0.5	1.55
1000	125	8 : 1	250	0.5	1.75
1100	125	8.8 : 1	250	0.5	1.95
1200	125	9.6 : 1	250	0.5	2.15

Table 13 Carrying capacity and seed-yield ratios at different yield rates

3.2.2.3 Applying carrying capacity

Using these figures, it is possible to perform the following thought experiment. Say that the urbanisation rate was 20%, and that the urban territory included all land in a circle around it and was used to feed both the urban and rural population. Of course we must remain aware that an urbanisation rate of 20% might be true on a supraregional level, but can be vastly different on a local level, at least around large cities like Antioch and Seleucia Pieria, with far higher urbanisation rates. Perhaps in the case of small agro-towns a large part of the urban population may have been occupied in agriculture, as was the case in the region in the Bronze Age nucleated settlement pattern. For the Roman period, however, there are very few indications for a pattern like this, except in the later Roman 'cities' of the Negev. Assume the basic premise that 1 hectare of land can support 1 person for a year (so 100 people per km sq.). What follows is that for each city-dweller, there are 4 people in the countryside $\left(P_{City} = 0{,}2\ P_{Total}\right)$, so for each square kilometre of land, there are 20 city dwellers ($P_{Total} = 20\pi r^2$). The radius of the circle of land needed to feed the city is then $r = \sqrt{\frac{P_{City}}{20\pi}}$ (the surface area of the city itself is negligible, and on the assumption that 100% of the land lying within these zones was arable). A village of a hundred inhabitants (so with 400 farmers living around it) only needs a radius of 1.3 kilometres, a town of 5000 people requires 8.9 kilometres. An optimal 'market-radius' of 15 kilometres, ignoring terrain, would then feed a city of 14,137 inhabitants (for a total regional population of 70,686).

Using yet another typical figure, assume that the population density of a city is 150 persons per hectare. A single 'market radius' should then be able to support a city of 94 hectares. This is, naturally, an enormous simplification, but taking into account that the vast majority of cities throughout the empire measured well below 40 hectares in size, it does indicate that in most places local agriculture should not be seen as the limiting or even the defining factor of urban growth. In 'Rethinking Early Mediterranean Urbanism', Bintliff offers a more detailed model using this approach. The variables used differ slightly but the overall outcome is comparable, with an 80 hectare Iron Age settlement (and its subordinate settlements) requiring a territory with a 14 km radius, again highlighting that for most settlements, considerably smaller territories would be necessary.[692]

[692] John Bintliff, 'Rethinking Early Mediterranean Urbanism.', in *Mauerschau, Bd. 1. Festschrift Fuer Manfred Korfmann*, ed. R. Aslan et al. (Verlag Bernhard Albert Greiner, 2002), 157–61, 171, http://hdl.handle.net/1887/8440.

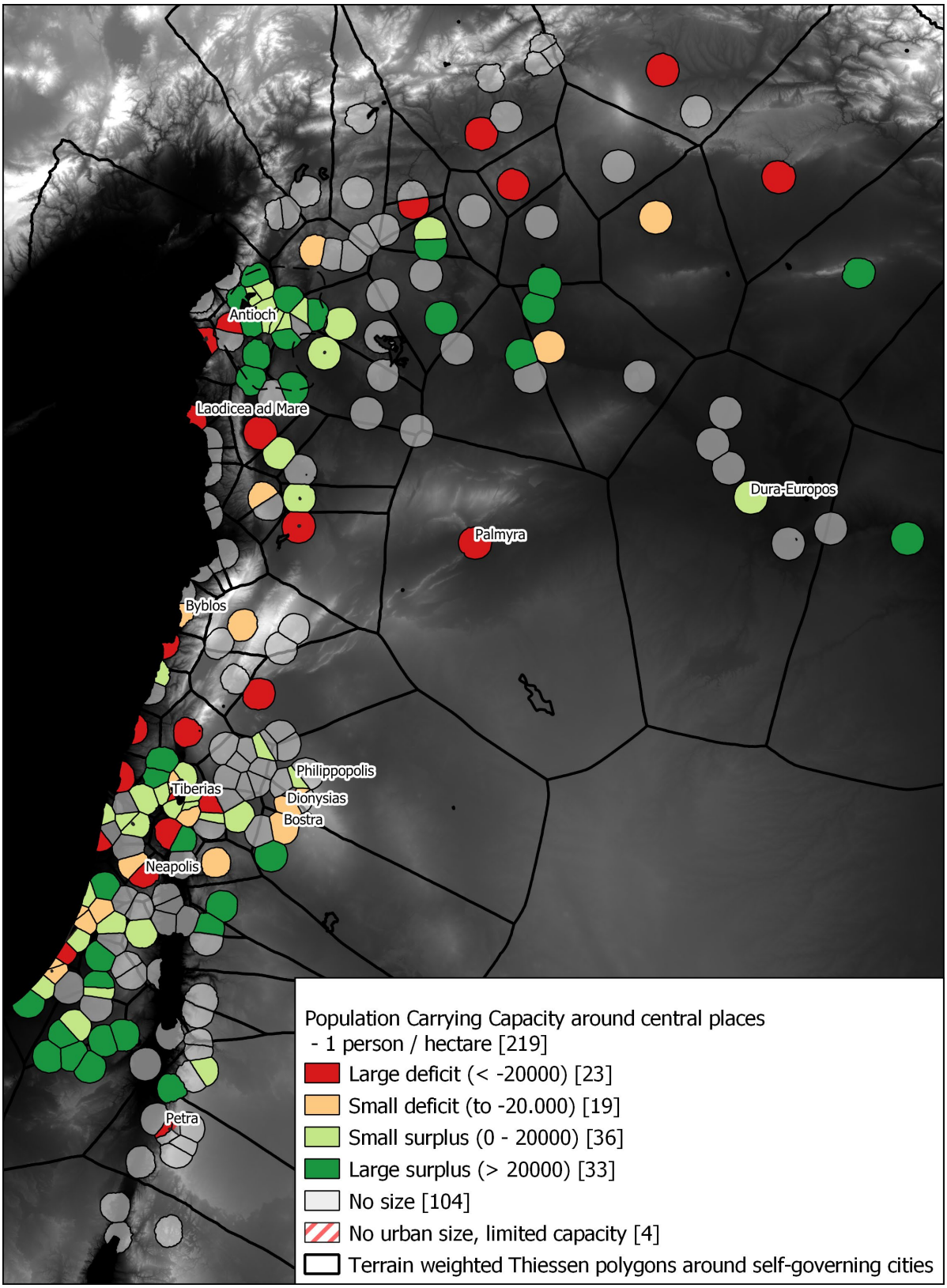


Figure 44 Carrying capacity - 1 person per hectare

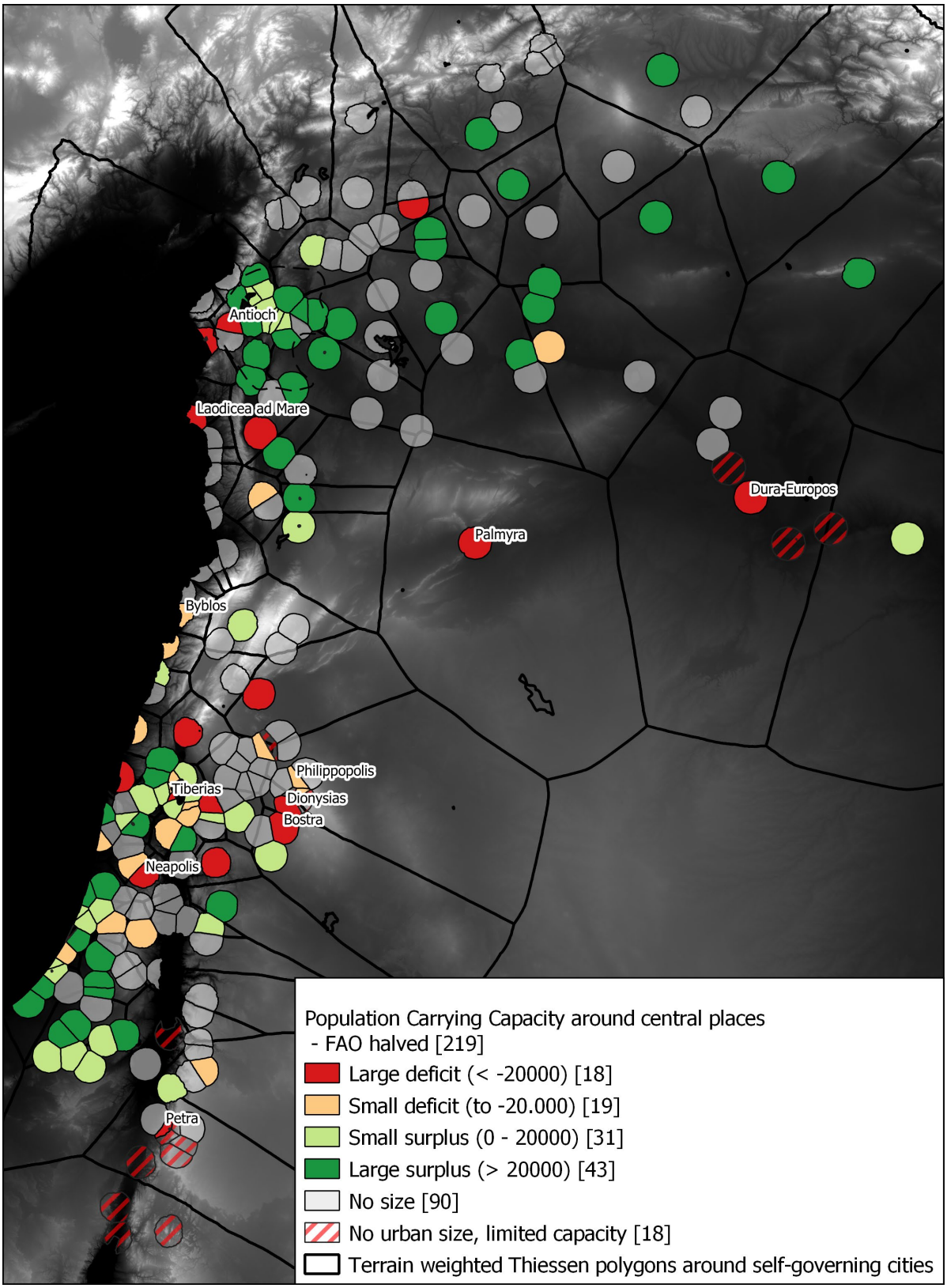


Figure 45 Carrying capacity based on FAO figures (halved)

Tony Wilkinson performed similar calculations for Early Bronze Age dry farming states in upper Mesopotamia, located in the same 300 to 600 mm rainfall band as the later cities of Roman Mesopotamia and Osrhoene discussed here. His model is more detailed, considering it assumes that half the population engaged in agriculture, and incorporates the amount of labour required for harvest (3 hectares per worker harvested in harvest season), the size of secondary settlements, the amount of surplus carried over from the satellites to the main settlement and different scenarios for different population densities.[693] The end result is, however, comparable: for a settlement with a 15-km radius territory (made up of seven circular sub-territories, that of the main settlement and that of its six satellites), the core settlement would have a maximum population between 11,734 to 14,374 inhabitants, with an area of 72 to 114 hectares. It should be noted that in the higher-count end scenarios, around 65% of the population would be living in the core settlement. With somewhat larger secondary settlements, measuring around 10 hectares, this percentage would drop to 49%, and still allow a settlement of up to 84 hectares.[694] Even so, it is clear that in this model too, a settlement dependent on its direct periphery would cap at a settlement size in a higher range than the vast majority of Roman settlements.

These models can also be applied directly to our available data: Figure 44 gives an overview of all the cities and places with potentially central roles. Given the same basis, 1 person per hectare, it shows that for a majority of town-like places, regional production within a 3-hour distance would be able to sustain the estimated urban populations, plus four times as many people in the surrounding countryside. Within these parameters, 42 out of 178 areas would not be able to support their population, against 69 with a definitive surplus. Of the 108 regions for which the central settlement has no known size, only 4 would have their potentially supported regional population capped at 10.000 people (therefore allowing at most 13,3 hectares for the regional centre, with 2000 people living in town).

Additionally, the map highlights that we lack market coverage for considerable parts of the Levant. In some cases, this makes sense, like in the Lebanese mountain ranges where one would expect low settlement coverage to begin with. Here the drastic effect of the mountains on travel time from the coastal cities nearby is also quite visible, showing a clear cut-off of the territory polygons at the foot of the mountains. But the vast empty areas between settlements in Osrhoene and Mesopotamia reflect what was already obvious from the settlement distributions in 3.1.1: we simply know far fewer lower-order settlements in these provinces than we should expect to have existed there.

[693] Wilkinson et al., 'Structure and Dynamics of Dry-Farming States', 495–98.
[694] Wilkinson et al., 502, 503 table 3.

Figure 45 shows the same regions, but then with their carrying capacities based on the potential yield figures from the FAO. According to the documentation, the FAO figures already incorporate fallowing, assuming the simplest forms of natural grass or bush fallowing, thus essentially requiring biennial fallowing.[695] Note as well, that in figure 30, we assume only 50% of the land was actually cultivated.

In the FAO scenario (Figure 45), thirty-seven sites failed to sustain their population. A further eighteen, lacking an urban size, only sustained a population under 10.000. This is against 74 regions that were able to sustain their populations, and a further 90 areas with no known urban size, but able to support regional populations over 10.000 people. There does appear to be a clear shift towards the desert edge for lower-yield zones, with areas that are larger due to fewer obstacles in the terrain in fact producing less due to limited rainfall. This then already appears to be a more realistic reflection of the natural conditions. For some of these settlements, based on sizes for earlier or later periods, that may in fact be a realistic limit for the population of the settlement: the port of Aila, for instance, measured under three hectares in the Early Islamic period and as stated above was likely even smaller in the Roman period.[696] Another interesting difference is that the large centres in Upper Mesopotamia benefited from optimal conditions for rainfed agriculture. Table 14 shows an overview of the cities that were not able to sustain themselves from their market zone alone, following FAO figures.

[695] Fischer et al., 'Global Agro-Ecological Zones (GAEZ v3.0)- Model Documentation', 83–84.
[696] Parker, 'Preliminary Report on the 1994 Season of the Roman Aqaba Project', 27.

City name	province	market zone size (ha)	Estimated urban population	Estimated total regional population	Population Deficit based on halved FAO figures
Antioch	Syria-Coele	28151	75000	375000	-343555
Apamea	Syria-Coele	56302	37500	187500	-63877
Laodicea ad Mare	Syria-Coele	22430	25500	127500	-71290
Zeugma	Syria-Coele	35391	21000	105000	-23978
Seleucia Pieria	Syria-Coele	20241	19500	97500	-72698
Damascus	Syria-Phoenice	53850	18750	93750	-36315
Palmyra	Syria-Phoenice	56926	17783	88915	-88915
Neapolis	Syria-Palestina	37592	15000	75000	-46084
Akko	Syria-Phoenice	26253	15000	75000	-37392
Caesarea Paneas	Syria-Phoenice	44944	15000	75000	-32775
Gerasa	Arabia	47525	12750	63750	-31777
Scythopolis	Syria-Palestina	39185	12000	60000	-12468
Bostra	Arabia	47417	11985	59925	-44581
Abila Dekapoleos	Syria-Palestina	25259	11250	56250	-32670
Petra	Arabia	12950	10500	52500	-50947
Caesarea	Syria-Palestina	13242	9750	48750	-10533
Sebaste	Syria-Palestina	30554	9600	48000	-5982
Aelia Capitolina	Syria-Palestina	50240	9000	45000	-15911
Raphaneae	Syria-Phoenice	33720	9000	45000	-6255
Tyrus	Syria-Phoenice	20312	8700	43500	-6166
Dura-Europos	Syria-Coele	60008	8685	43425	-38197
Ascalon	Syria-Palestina	18851	8100	40500	-10300
Hegra	Arabia	54221	7875	39375	-39375
Berytus	Syria-Phoenice	16839	7500	37500	-13768
Emmaus Nicopolis	Syria-Palestina	34158	6750	33750	-7721
Dionysias	Arabia	27758	6315	31575	-23225
Byblos	Syria-Phoenice	17209	6000	30000	-18762
Tiberias	Syria-Palestina	2982	5565	27825	-24641
Thoana	Arabia	34769	5400	27000	-9838
Gadara	Syria-Palestina	22407	4500	22500	-899
Capernaum	Syria-Palestina	6448	2550	12750	-6364
Sharah	Arabia	21677	2550	12750	-1102
Canatha	Arabia	5535	2400	12000	-10760
Magdala	Syria-Palestina	1944	1500	7500	-5492
Philippopolis	Arabia	15367	1500	7500	-4580
Emmatha	Syria-Palestina	7019	960	4800	-508

Table 14 Cities with a deficit in local food production (FAO figures)

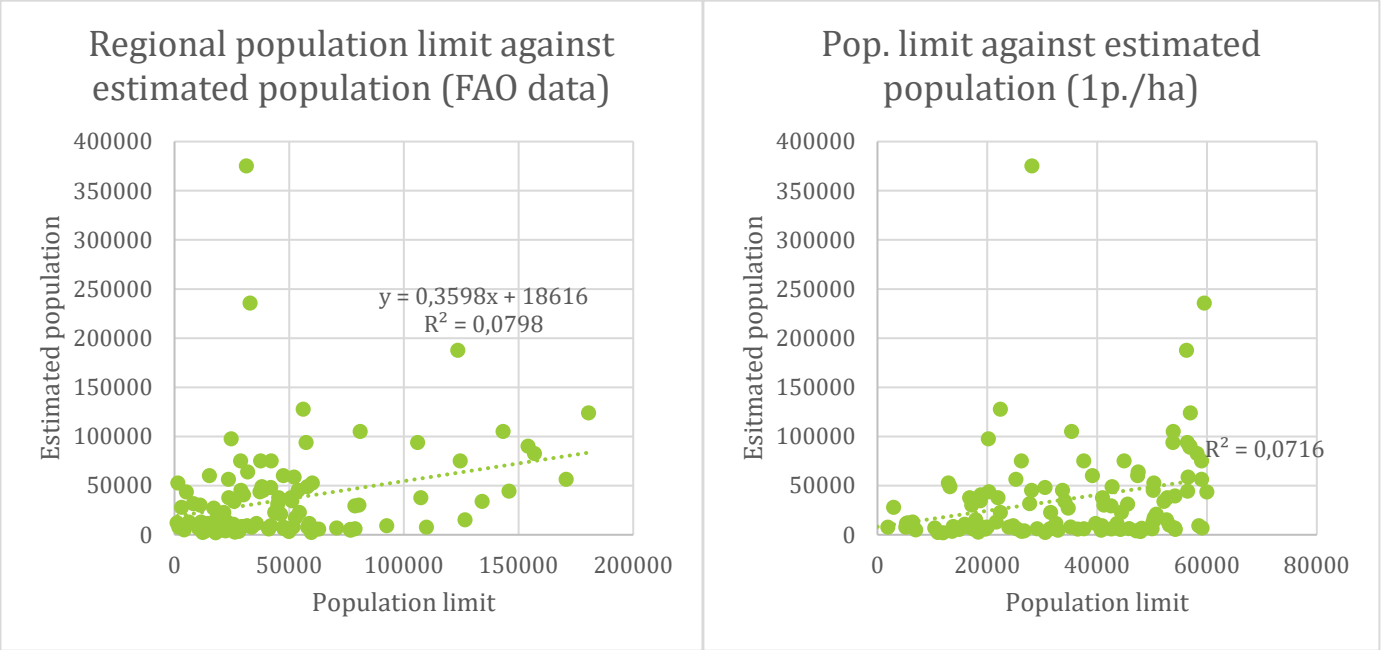


Figure 46 correlation estimated population versus population capacity based on FAO data and on market zone size

In Figure 46 it can be seen that in comparison to Thiessen polygons, there is clearly a better fit between estimated regional population and the derived population limit, for both the FAO data, as well as simply taking the size of market zone. Even so, the goodness-of-fit is still quite low. Filtering this to any subset (specific regions or settlement status) does not show any better fitting distributions. Only when filtering out the places with a population higher than what could be sustained based on the FAO data does the goodness-of-fit start to increase significantly. This underlines that in its basis, using cereal production within market zones is a reasonable baseline for predicting regional population levels, but that there will always be settlements whose size

cannot be simply explained by such a simple model (larger actual territories, getting food over longer distances, different types of food sources etc.).

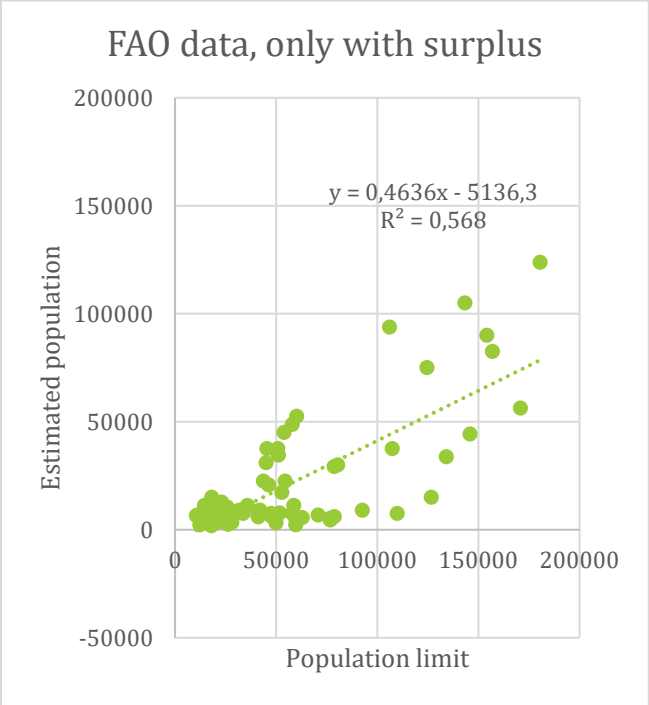


Figure 47 Regional population limit against estimated population (FAO data, only with surplus)

If this is further specified by settlement status (self-governing city versus non-urban central places), something else becomes clear: this model only works for self-governing cities. It would appear that for non-urban central places, local food production is not a limiting factor in their size. For the larger self-governing cities estimated populations are in most cases also far lower than the expected limits based on the FAO data. However, the graph suggests that even so, the limits of local production are very likely to have factored in the potential population size of the settlement. Especially in the population quadrant under a 100.000 potential regional inhabitants, we do find a larger number of cities where the estimated total population comes close to (or for the set in **Table 14**, surpasses) 100% of the local population limit. For the potentially more productive regions, this tapers off, with populations leaving large potential surpluses unused. In other words, the more limited local production, the better use is (or has to be) made of the land for food production.

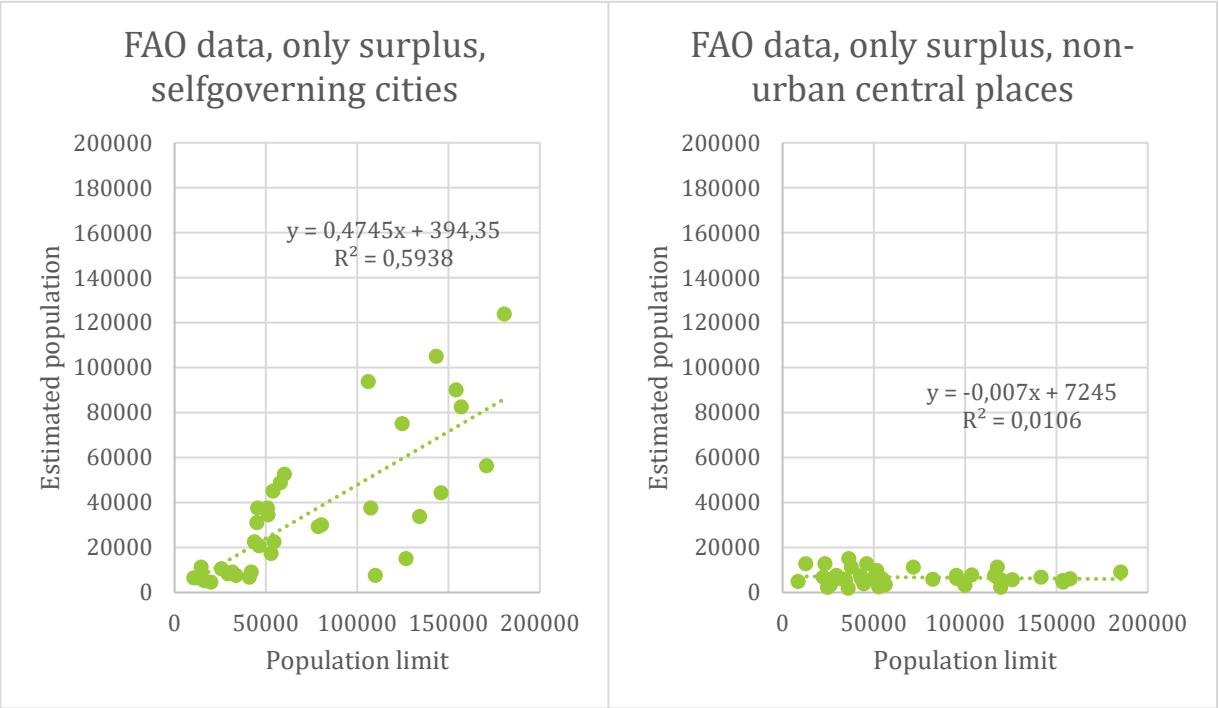
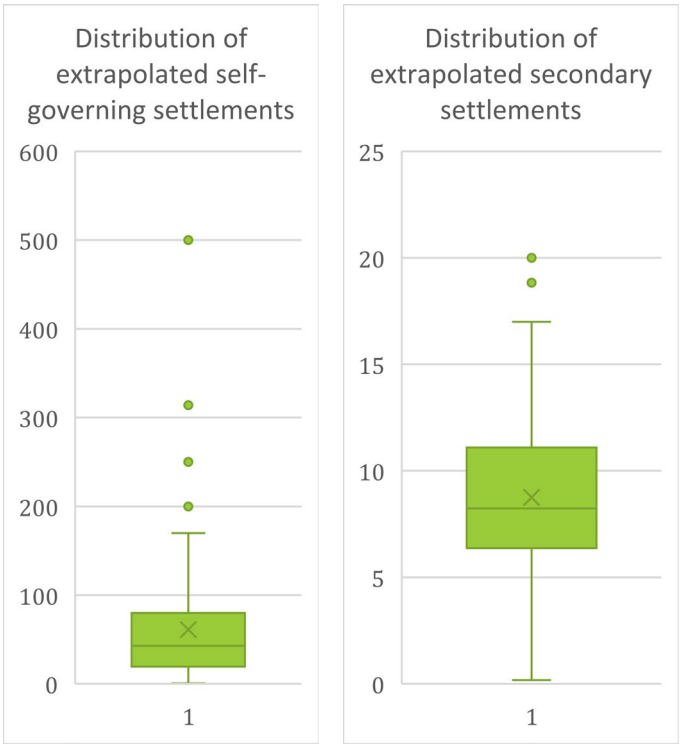


Figure 48 Regional population limit against estimated population (FAO data, only with surplus, split by settlement status)

3.2.2.4 Extrapolating population trends

This also allows us to generate a limited reconstruction of settlement sizes for those settlements where we lack data. For non-urban central places, we can assign random normally distributed sizes following the size distribution of the known sizes discussed above. For self-governing cities, we apply the derived relationship between population limit and estimated population as seen in Figure 48, y = 0.4745x + 394.35. This allows us to generate sizes for the remaining 108 settlements. See Figure 49 for the resulting adjusted rank-size curves by province.



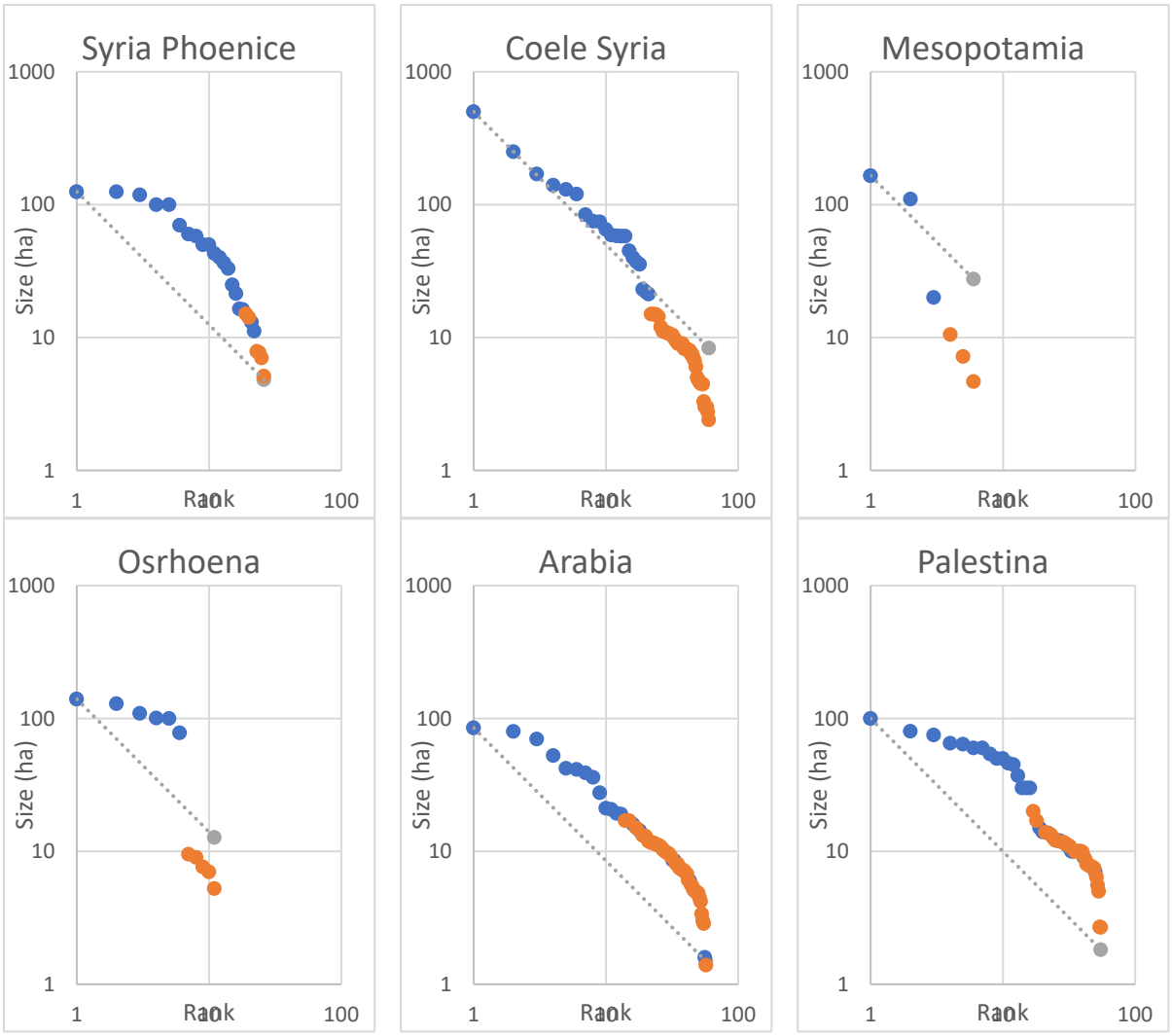


Figure 49 Extrapolated RS-curves by province

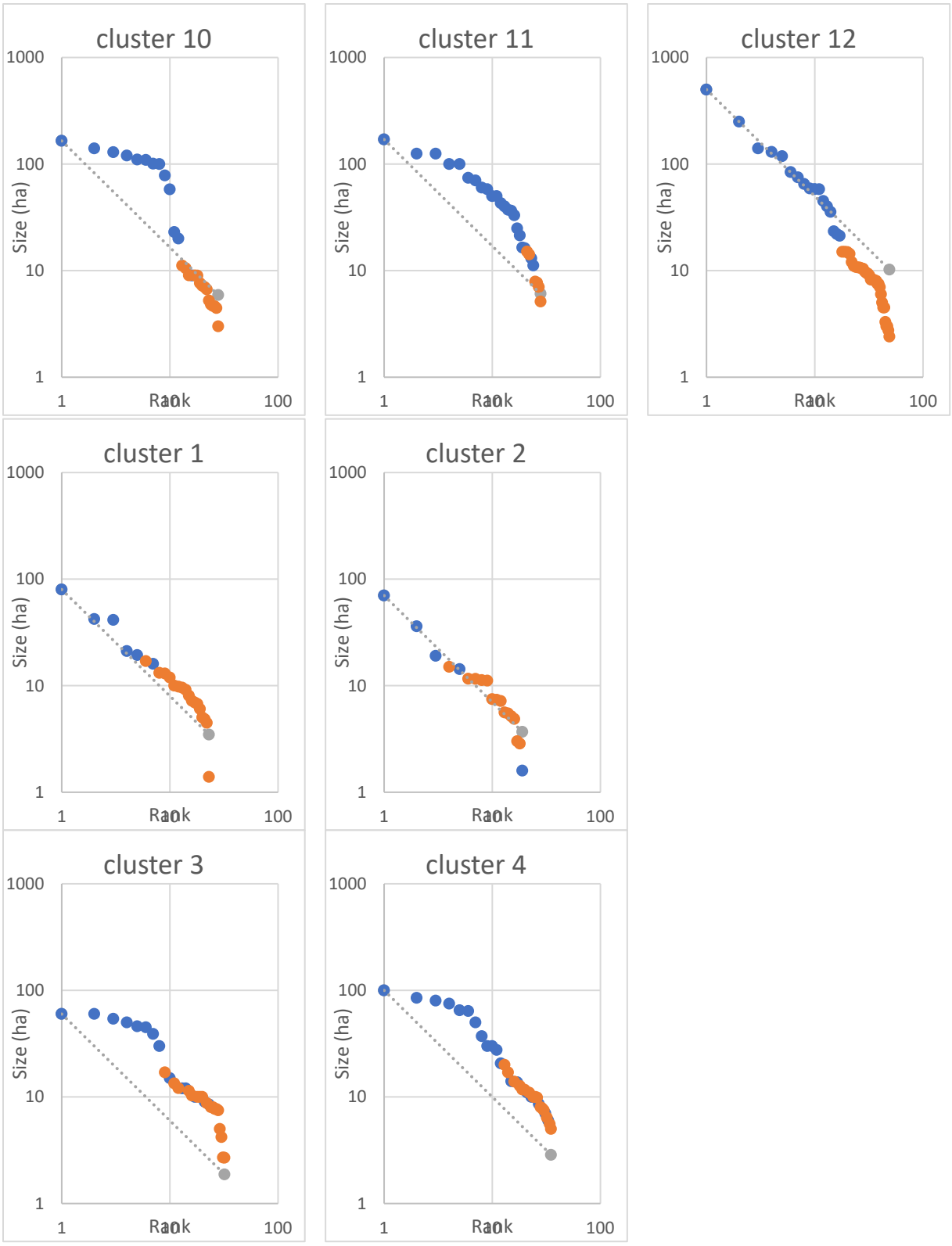


Figure 50 RS-curves extrapolated settlement sizes - by cluster

Here we see that the already existing patterns described in the preceding chapters are further reinforced. Coele Syria sticks relatively close to a Zipf-distribution, while Phoenice, Arabia and Palestina retain their convex distributions. Mesopotamia and Osrhoene still have rather low

sample sizes, where Mesopotamia retains its primate distribution. The addition of the non-urban settlement sizes in Osrhoene shows a considerable break between the upper and lower tails, suggesting part of the distribution is lacking.

Using the proximity clusters defined in the previous chapters (Figure 51 Proximity clusters), rather than the provincial boundaries adds an additional perspective. Cluster 10, essentially a merge between Mesopotamia and Osrhoene, shows considerable convexity, but the issues of both provinces are alleviated. This suggests as much as that the relative proximity of these settlements could have stimulated them to interact as a single system.

Clusters 1 and 2, the two parts of Arabia, received the bulk of the extrapolated settlement sizes (with 34 settlements being assigned a new size). Interestingly, both areas retained the (close to) Zipfian distribution already discerned in chapter two. Considering the degree to which these data are informed by local agricultural production, it becomes far less likely that the shape of this distribution has anything to say about economic integration.

Looking at the above, it is clear that for the majority of Levantine settlements this 'blunt tool' of carrying capacity functions quite well as a baseline. To be sure, it cannot be stressed enough that actual territories probably differed from the 'market zones' defined here, which in the first place serve to create an equal basis for analysis and comparison between the various cities. Similarly, actual land use would not just consist of cereal cultivation, not all land would actually be cultivated, diets would be more varied and actual urbanisation rates – and as such, population densities – would in reality have differed regionally. And it is crucial to keep in mind that food is only one of several vital resources, with others such as potable water and fuel also being critical, albeit harder to quantify.[697]

Even in the more pessimistic scenarios, the majority of settlements could produce enough wheat or barley within their direct market radius to sustain both the urban and rural population. Of course, there is no reason to assume these were closed off, autarkic communities. They did not necessarily depend on their hinterlands, but probably could within the given parameters. Their existence, however, did not necessarily depend on the presence of a complex society. With or

[697] Janssen et al., 'Fuel for Debating Ancient Economies. Calculating Wood Consumption at Urban Scale in Roman Imperial Times'; S. Thomas Parker, 'Roman Aila and the Wadi Arabah: An Economic Relationship', in *Crossing the Rift: Resources, Routes, Settlement Patterns and Interactions in the Wadi Arabah*, ed. Piotr Bienkowski and Katharina Meisel Galor, 2006, 228; Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 110.

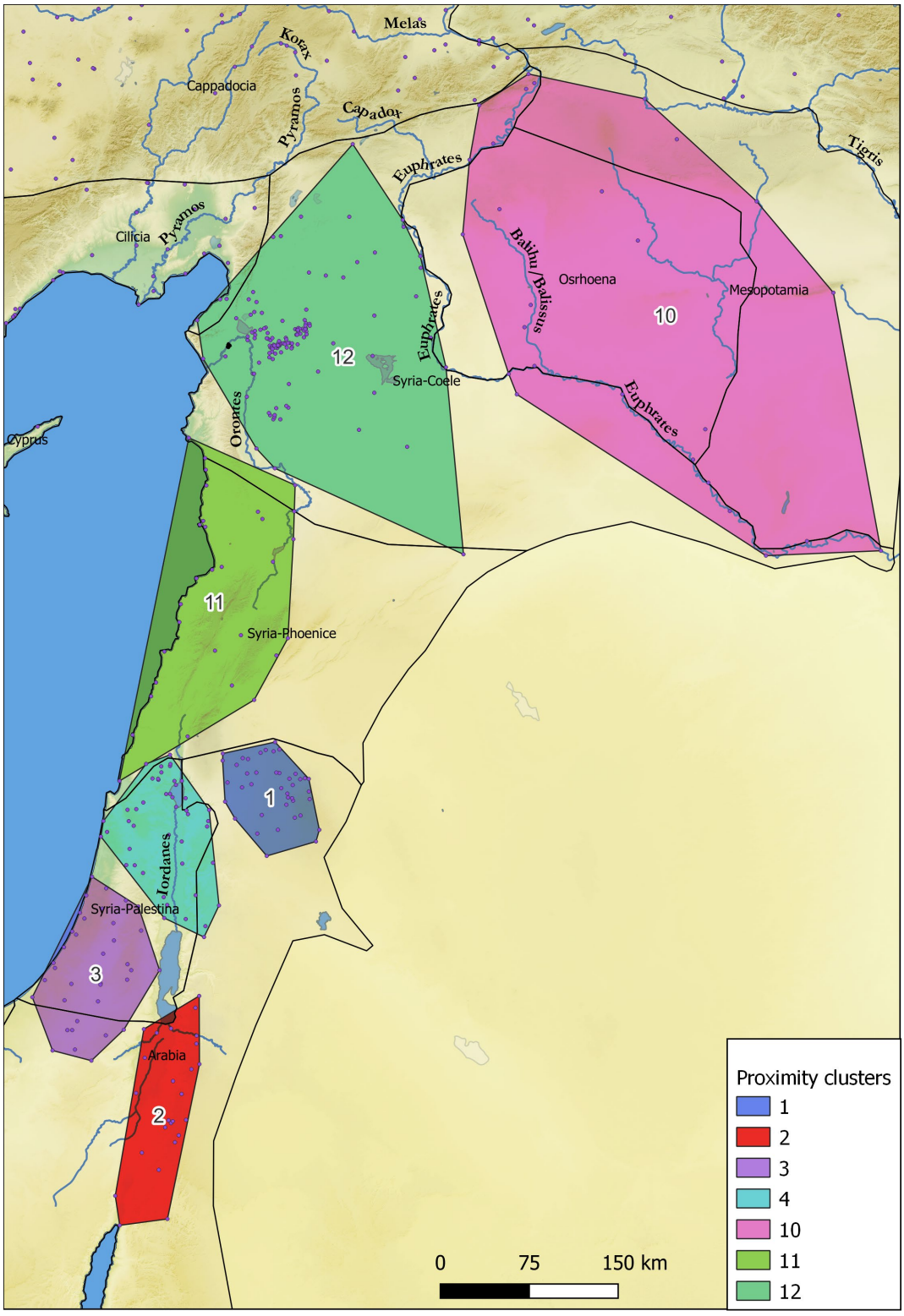


Figure 51 Proximity clusters

without the political integration that came with the Roman empire, these settlements would have been able to continue to exist in this form and size.

In the remainder, the explanations for why various cities were larger than the constraints of their surrounding 3-hour zones should be sought in the limitations of the model. This brings

human agency back into the equation. Human actions impacted soil productivity in a myriad of ways, from better adaptation to the terrain using terracing, alternative methods to provide enough water and nutrients to crops, to larger actual political territories and more complex settlement hierarchies, different diets or the acquisition of foodstuffs through trade. For a number of cities, alternative forms of agriculture and non-agricultural wealth will be explored in sections 3.2.3 and 3.2.4, while Chapter 4 will take Antioch as a case study for political territory and settlement hierarchy.

3.2.3 Petra: alternatives to rain-fed dryland farming

Among those cities that would fail to sustain themselves in our basic model, we find those that speak most to the imagination, such as Petra and Palmyra. The surroundings of Petra give the clearest examples of how a local population could cope with a problematic territory.

In his 2016 study, Will Kennedy calculated the possible extent of Petra's effective agricultural hinterland using similar methods to those above, looking at travel cost on the basis of slope. Considering the exceptional landscape of Petra, with its extreme topography of steep slopes and elevation differences, this results in a markedly non-circular hinterland between 50 and 196 square kilometres.[698] Within most of this area, containing the sandstone slopes of what Paula Kouki classifies as the Escarpment Zone, the annual average rainfall of at most 150 mm was hardly sufficient for the farming of barley. As Kouki further adds, the nutrient-poor and shallow soils required manuring to support the cultivation of more demanding plants over longer periods of time.[699] On the eastern side Petra's hinterland also included the western side of the Jabal ash-Sharāh. This area is somewhat better suited for rain-fed farming: the higher elevation of this area results in a higher mean annual rainfall of 200 mm, lower temperatures and therefore lower evaporation rates. As pointed out by Besançon, further towards the summits of the Jabal ash-Sharāh, precipitation can probably reach around 400 mm per annum, with 301,7 mm measured at the Shobak weather station.[700] In addition, a diverse lithology of permeable limestones and nonpermeable sandstone layers allows for the existence of numerous springs.[701]

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[698] Will M. Kennedy, 'Reassessing the Impact of Natural Landscape Factors on Spatial Strategies in the Petra Hinterland in Nabataean-Roman Times', *Proceedings of the Seminar for Arabian Studies* 46 (2016): 137–54; Jacques Besançon, 'Géographie, environnements et potentiels productifs de la région de Pétra (Jordanie)', in *Entre nomades et sédentaires : prospections en Syrie du Nord et en Jordanie du Sud*, ed. Pierre-Louis Gatier, B. Geyer, and Marie-Odile Rousset, Travaux de la Maison de l'Orient 55 (Lyon: Maison de l'Orient et de la Méditerranée, 2010), 22.
[699] Kennedy, 'Reassessing the Impact of Natural Landscape Factors on Spatial Strategies in the Petra Hinterland in Nabataean-Roman Times', 144; Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 103.
[700] Besançon, 'Géographie, environnements et potentiels productifs de la région de Pétra (Jordanie)', 28.
[701] Besançon, 39.

Even this more favourable agricultural zone had clear limitations. As mentioned before for the whole Levant, most of the rain falls between December and April, most heavily between January and March. Rains can come in very heavy rainstorms, with rains having been measured at Shobak of over 74 mm within 24 hours. Furthermore, interannual variation can be considerable, with dry years only reaching a third of average, and usually several dry years following each other.[702] Furthermore, the slopes on the Ash-Sharāh range are even more pronounced than in the Escarpment zone.[703]

In order to deal with this, the people of the Petra region practiced run-off cultivation. By building dams in wadi beds and terraces on hillslopes, during the rainy months water was diverted towards lower-lying agricultural plots. Furthermore, terracing was necessary to counter soil erosion on the steep slopes of the Ash-Sharāh. [704] Numerous structures related to run-off cultivation can be clearly dated to the Roman period around the Jabal Harun, to the southwest of Petra, but there are also good indications for Nabatean or Roman dates for water diversion structures throughout the rest of the region. In addition, to deal with annual and interannual variation in rainfall, both collected run-off water as well as water from springs was stored in reservoirs, as shown by cisterns found everywhere both in the Escarpment, the Jabal ash-Sharāh as well as the Wadi Silaysil regions. The locations of reservoirs and water conduits within agricultural fields further show that stored water was not just used for domestic use, but clearly intended for irrigation as well.[705]

As expected, water resources played a vital role in settlement location, so it is no surprise for instance to find Sabra, one of the suburbs of Petra, to be located at what was likely a perennial water source in Roman times. Similarly, the plentiful sources on the Jabal ash-Sharāh gave birth to just as many antique settlements.[706]

In the other, drier parts of the Levant similar practices can be found. Throughout Nabatean territory there are indications of terracing, run-off irrigation and ground-level aqueducts. John Peter Oleson gives an overview of various examples from Zoara down to Humayma, and includes

[702] Besançon, 28–29; Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 104.
[703] Kennedy, 'Reassessing the Impact of Natural Landscape Factors on Spatial Strategies in the Petra Hinterland in Nabataean-Roman Times'.
[704] Kouki, 'The Hinterland of a City: Rural Settlement and Land Use in the Petra Region from the Nabataean-Roman to the Early Islamic Period', 104, 105–6.
[705] Kouki, 106–8; Susan E. Alcock and A. R. Knodell, 'Landscapes North of Petra: The Petra Area and Wadi Silaysil Survey (Brown University Petra Archaeological Project, 2010–2011)', in *Supplement to Proceedings of the Seminar for Arabian Studies*, vol. 42, 2012, 5–16; Knodell et al., 'The Brown University Petra Archaeological Project'.
[706] Besançon, 'Géographie, environnements et potentiels productifs de la région de Pétra (Jordanie)', 65.

an interesting example from the Babatha archive, where two papyri give a schedule for when certain landowners were allowed to irrigate their crops.[707]

As Tali Erickson-Gini writes about agriculture in the equally arid Negev, where an estimated 2000 square kilometres of land may have been exploited through run-off and flood farming, 4000 hectares of which were terraced fields.[708] However, available evidence suggests that most of this dates to the fourth century or later. There are some indications of small-scale, limited agriculture based on the capture of spring water around Nabatean sites and stations throughout the Negev, at a handful of sites even as early as the Bronze Age (Rehovot, Horwat Haluqim). Outside of Nabatean lands, there is a notable example somewhat further to the north. Jericho and the other villages and estates lying in the lower Jordan valley also used water from springs from irrigation. In the case of Jericho, the main source of water was the ʿAin al-Sultan spring (Elisha's Spring), which is fed from the watershed of the Judean Highlands. Its high volume and perennial water flow has always been the basis of the city and the agriculture around it. Jericho's water supply was furthermore augmented by two other clusters of springs along the Wadi al-Qelt and the Wadi Nueima.[709] While indications for the size of the settlement are unclear, its plantations were well-known in antiquity, and counted among the domains that Mark Antony had given to Cleopatra. Pliny, Strabo and Josephus mention the cultivation of cash crops in the irrigated Jericho plain, with a focus on dates and balsam.[710]

A study by Ruth Shahack-Gross et al. analysing livestock dung gives a good indication that at an Iron IIA site in the Negev (Nahal Boqer), there are only indications that animals were fed by free grazing, while at a Late Roman and Umayyad site (Wadi el-Mustayer) their diet included cultivated grains.[711] It was only after our period of study that considerable areas in the Negev were put under cultivation, much of it for viticulture, to be exported from Gaza. It should be no surprise then that up to that point settlements remained comparatively small and limited in number, with presumably a larger focus on pastoralism and trade.[712]

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[707] John Peter Oleson, 'Nabataean Water Supply, Irrigation, and Agriculture: An Overview', in *The World of the Nabataeans: Volume 2 of the International Conference, The World of the Herods and the Nabataeans, Held at the British Museum, 17-19 April 2001*, ed. Konstantinos D. Politis, vol. 2, Oriens et Occidens 15 (Stuttgart: Steiner, 2007), 217–49.
[708] Erickson-Gini, 'Nabataean Agriculture', 50.
[709] Michael Jennings, 'Beyond the Walls of Jericho: Khirbet al-Mafjar and the Signature Landscapes of the Jericho Plain' (ProQuest Dissertations Publishing, 2015), 16, 122, http://search.proquest.com/docview/1707689179/.
[710] Jennings, 96–97.
[711] Ruth Shahack-Gross et al., 'Subsistence Economy in the Negev Highlands: The Iron Age and the Byzantine/Early Islamic Period', *Levant* 46, no. 1 (1 April 2014): 98–117, https://doi.org/10.1179/0075891413Z.00000000034.
[712] Erickson-Gini, 'Nabataean Agriculture'; Rosen, 'The Nabateans as Pastoral Nomads. An Archaeological Perspective'.

An additional method of water capture is found throughout the Syrian provinces, especially around the Damascus region and in central Syria, east of Hama. Here groundwater was collected by means of qanats (also called foggara). As Dale Lightfoot describes it, these are gently sloping underground aqueducts that bring water from a mother-well dug into aquifers towards lower-lying fields to be irrigated. These tunnels can bring water over tens of kilometres; the gravity-fed flow is generally steady and continuous, hardly influenced by variations in precipitation (modern-day desiccation of qanats that have been functional over centuries is often caused by lowering water tables due to the proliferation of motor-powered water pumping.[713]) A number of shafts allow access to the tunnel for maintenance. As Oleson suggests, the near absence of qanats in Nabatean territory may be due to the need for maintenance, with run-off agriculture being considered more reliable.[714]

As is to be expected, most qanats can be found where they could actually be constructed and would be of most use: at shallow aquifers at the base of hills or mountains, in areas with limited annual rainfall and high evaporation, allowing water to be diverted for long distances into the steppe zone without suffering from evaporation. Only in areas with permeable rock layers (e.g. limestones) were aquifers were able to recharge seasonally, so no qanats are found in for instance the basaltic region of the Hauran.[715] The dating of qanats is no exact science, and while this method of irrigation may have already been introduced in the Persian or Hellenistic period, only from the Roman period onwards are there clearly dated examples, with the majority of qanats located at Roman or Late Roman settlements. Continued construction of qanats in later centuries is also clear, with Late Roman examples known from the arid margin around Andarin, and from Umayyad and Abbasid examples throughout the Islamic world.[716]

Beyond the Roman empire, it should also be highlighted that under Parthian and especially Sassanian rule, the Mesopotamian heartlands came to new levels in the scale and sophistication of irrigation. Over several thousand years, this had evolved from simply farming in floodplains, through managing and damming natural canals, to, as Tony Wilkinson puts it, 'the construction of massive, region-scale canal and irrigation systems'.[717] Here state-sponsored irrigation and settlement programs gave rise to a considerable population boom.[718] In other words, while the local solutions for rainfall limitations in the Roman Near East can explain some of the exceptions

[713] Lightfoot, 'Syrian Qanat Romani: History, Ecology, Abandonment', 323.
[714] Oleson, 'Nabataean Water Supply', 230–36.
[715] Lightfoot, 'Syrian Qanat Romani: History, Ecology, Abandonment', 329; figs 5, 6.
[716] Lightfoot, 325; Marie-Odile Rousset, 'Qanāts de la steppe syrienne', in *Entre nomades et sédentaires : prospections en Syrie du Nord et en Jordanie du Sud*, ed. Pierre-Louis Gatier, B. Geyer, and Marie-Odile Rousset, Travaux de la Maison de l'Orient 55 (Lyon: Maison de l'Orient et de la Méditerranée, 2010), 266, 267.
[717] Wilkinson, *Archaeological Landscapes of the Near East*, 92.
[718] Wilkinson, 94.

to what could be expected in a dry climate, they are not comparable in scale to the massive agricultural projects found in central Mesopotamia.

3.2.4 Alternatives to cereal cultivation: cash crops, industry and trade

As stated above, besides better adaptation of farming techniques to the local environment, one should of course also consider other sources of food, and the cultivation of cash crops for trade (allowing import of food through trade), as in reality cereal cultivation will only have made up part of the land use, albeit the larger one. So, it is sensible to assume that coastal settlements would in part depend on fishing, and that some terrain unsuitable for much else could be used for pastoralism - see for instance the issue of grazing rights at Palmyra mentioned in 3.2.4.1. Concerning cash crops, throughout the entire region there are many examples of viticulture, and Strabo's example of Laodicea mentioned in 1.2.1.2 clearly shows that the wine produced could be exported. When taking a look at the hinterland of Antioch, we find the Massif Calcaire dotted with presses – originally considered to have been intended for olive oil, many have now been re-identified as wine presses. Either way, at least for the later Roman period a strong case can be made for surplus production intended for export, as the total output of all the presses in the region would have been far higher than local consumption could have been.[719]

And of course, non-primary production should also be considered for some of the cities whose direct surroundings would probably not be enough to sustain their populations. Unfortunately, source material on the subject is very limited for Syria. There are certainly no quantitative indications of income, production or trade. It is still possible to refer to Louis C. West's article from 1924 as a relatively complete and up to date overview of Syrian commercial production, albeit mostly based on written sources. Besides Pliny and a bit of Strabo, most of this information comes from 4th-century sources like the Diocletian Price Edict, the works of Julian and *Expositio Totius Mundi*.[720] Archaeologically, his list can at best be expanded with a pottery production site at Palmyra (a complex consisting of five kilns from the late second century), dye-works at Gaza, a pottery workshop of the Legio X Fretensis outside of Jerusalem, some small-scale local pottery production at various sites, a facility for producing garum at Ashkelon and

[719] Michael Decker, 'Food for an Empire: Wine and Oil Production in North Syria', in *Economy and Exchange in the East Mediterranean during Late Antiquity: Proceedings of a Conference at Somerville College, Oxford, 29th May, 1999*, by Sean Kingsley and Michael Decker (Oxford [etc.]: Oxbow Books, 2001), 69–86; Dimitri Van Limbergen, 'Olivier Callot, Déhès II : Les Pressoirs', *Syria. Archéologie, Art et Histoire*, 4 June 2019, http://journals.openedition.org/syria/8051.
[720] Louis C. West, 'Commercial Syria under the Roman Empire', *Transactions and Proceedings of the American Philological Association* 55 (1924): 159–89, https://doi.org/10.2307/283014.

Late Roman or Byzantine glassworks at for instance Apollonia, Hadera and Khirbat ʿAsafna.[721] Thus, we know that specific production existed at certain sites. Furthermore, throughout the previous chapters, while identifying and describing the cities of the Roman Levant, for a number of these we could determine what activity they were known for. This may not be conclusive evidence that these activities were the foundation of their urban success, but nonetheless hint in a certain direction.

So, among the cities with a potential food deficit in Table 14, one finds a number of cities that were well-known for their industries. A good example is Tyre, known for its silk weaving and purple dyes, and Berytus for its linen and silk weaving. And while not actually in the table (as its 3-hour zone would be sufficient for its food production), Sidon deserves to be mentioned alongside its neighbours Tyre and Berytus, as it was known for its production of glass, textiles, dyes and, apparently, ointments. Furthermore, all three cities are known to have exported wine, and this productive stretch of coastline would additionally have benefited from the wood coming from the Lebanon mountain range for fuel, production and trade. In fact, for most Syrian exports with a known provenance, either Antioch or these three cities of Syria Phoenice are named. The major exceptions are wine and slaves, with several cities, both coastal and inland, exporting these throughout the wider empire.[722]

That these industries were located at port cities creates an additional sense that, with reduced barriers to transport costs, these industries may have catered to a relatively large market. For Tyre there is of course the well-known example of the Tyrian merchants stationed in Puteoli. But consider also for instance the article by Wilson, Schörle and Rice, who highlight that "most Roman glass has a chemical signature matching the sand from the Syro-Palestinian coast, which was especially well suited to glass-making with a natron flux; this region must have been the

[721] Tali Erickson-Gini, 'The Good Life: Evidence for the Production of Wine and Garum in an Early Roman Estate and Byzantine Monastery South of Ashkelon', *English Editor*, 2020, 7; Agnès Vokaer, 'Pottery Production and Exchange in Late Antique Syria (Fourth–Eighth Century A.D.). A Study of Some Imported and Local Wares', *Late Antique Archaeology* 10 (1 January 2013): 567–606, https://doi.org/10.1163/22134522-12340042; A. Ovadiah, 'Excavations in the Area of the Ancient Synagogue at Gaza (Preliminary Report)', *Israel Exploration Journal* 19, no. 4 (1969): 197; Elizabeth A. Murphy, Haim Goldfus, and Benny Arubas, 'The Jerusalem Legio X Fretensis Kilnworks: Contextualizing Ceramic Manufacture and "Legionary Wares"', *Oxford Journal of Archaeology* 37, no. 4 (2018): 443–66, https://doi.org/10.1111/ojoa.12153; Ian C. Freestone, Yael Gorin-Rosen, and Michael J. Hughes, 'Primary Glass from Israel and the Production of Glass in Late Antiquity and the Early Islamic Period', *MOM Éditions* 33, no. 1 (2000): 65–83; Chen Chen et al., 'A Glass Workshop in 'Aqir, Israel and a New Type of Compositional Contamination', *Journal of Archaeological Science: Reports* 35 (1 February 2021): 102786, https://doi.org/10.1016/j.jasrep.2020.102786; Limor Talmi, 'Kh. 'Asafna: Final Report', *Hadashot Arkheologiyot: Excavations and Surveys in Israel / חדשות ארכיאולוגיות: חפירות וסקרים בישראל* 131 (2019), https://www.jstor.org/stable/26904642; Oren Tal, Ruth E. Jackson-Tal, and Ian C. Freestone, 'New Evidence of the Production of Raw Glass at Late Byzantine Apollonia-Arsuf, Israel', *Journal of Glass Studies* 46 (2004): 51–66.

[722] Butcher, *Roman Syria and the Near East*, 137–40; West, 'Commercial Syria under the Roman Empire'.

overwhelmingly dominant supplier of raw glass for the secondary production centres all over the Roman world".[723]

On the other hand, while access to the sea also facilitated the import of foodstuffs, there is little evidence that these cities indeed imported these, except for the above-mentioned imported amphorae intended for fish or garum found in cities on the Levantine coast. Of course, as Maurice Sartre shows, there are good indications that in general, trade in foodstuffs took place in Syria. In the first place, in a number of cities an *agoranomos* is attested in inscriptions,[724] the official tasked with market supervision and, relevant in this context, ensuring an adequate supply of foodstuffs for the city. However, it should be kept in mind that this does not necessarily imply extra-regional imports, as an *agoranomos* could just as well be focussed on regulating the regional food market. Grain markets are attested in Palestine, for instance at Scythopolis, Diocaesarea (Sepphoris) and Sussita, and in Rabbinic literature there is a good example of rabbis from Tiberias going to Iamnia to purchase grain.[725]

In his economy of Roman Palestine, Zeev Safrai suggests that the presence of a year-round grain market in Diocaesarea, and apparently cheaper grain at neighbouring Tiberias, suggests that Diocaesarea was dependent on imports.[726] Surely the presence of Lake Tiberias will have facilitated transport of surpluses from surrounding regions such as the Decapolis and may well have resulted in lower grain prices than in Diocaesarea. But as noted above, the presence of a market does not mean a structural dependence on interregional trade, and the territory of Diocaesarea appears to be sufficiently productive. Safrai's example that Caesarea Maritima depended not just on its own production but on food imported from its far smaller neighbouring cities in the Sharon Plain does seem believable.[727]

Apart from cities thriving on commerce and industry, there is also the matter of military presence and its impact on urban communities. In multiple cities there are indications of military garrisons within the confines of cities. For this, it is worthwhile looking at Nigel Pollard's *Soldiers, cities, and civilians in Roman Syria*. In this book, he responds to Keith Hopkins' 1980 centre-periphery model on taxation and trade from a Syrian perspective. In this model, both the centre of Italy and Rome and the armies stationed in frontier regions consumed more

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[723] Candace Rice, Andrew Wilson, and Katia Schörle, 'Roman Ports and Mediterranean Connectivity', *Rome, Portus and the Mediterranean*, 2012, 374.
[724] in the case of Tyre for instance in M. Chéhab, 'Tyr à l'époque Romaine. Aspects de La Cité, à La Lumière Des Textes et Des Fouilles', *Mélanges de l'Université Saint-Joseph*, 1962, 17, but there are examples from all over the provinces.
[725] Sartre, *D'Alexandre à Zénobie*; Alla Stein, 'Gaius Julius, an Agoranomos from Tiberias', *Zeitschrift Für Papyrologie Und Epigraphik* 93 (1992): 144–48; Daniel Sperber, 'On the Office of the Agoranomos in Roman Palestine', *Zeitschrift Der Deutschen Morgenländischen Gesellschaft* 127, no. 2 (1977): 227–43.
[726] Safrai, *The Economy of Roman Palestine*, 112.
[727] Safrai, 113.

taxes than were generated there, while an inner ring of provinces including Asia Minor, Syria and Egypt produced more taxes than they consumed. The implication is that tax-importing regions would also import goods, causing producers in the intermediate zone to start surplus production for sale, in order to raise money for taxes.[728] The army thus plays a major role in this model: both soldiers receiving pay in money (which increased money supply, as more people used money, Hopkins' fifth proposition) and by raising state and military expenditure in general (integrating the monetary economy into a single system).[729]

Nevertheless, Pollard shows mixed evidence for economic interaction between soldiers and the local population. There is some evidence for food being purchased from civilians, as well as supply from an imperial estate (at Appadana), bypassing the market. On the topic of estates, consider as well the quarries around Zeugma or the above-mentioned legionary pottery workshops at Jerusalem. Still, with indications of soldiers using civic coinage and locally produced pottery, overall, Pollard finds that 'the army was a key element in the provincial economy through its position in a chain of cash taxation, army pay and army spending. This economic network appears to have been regional in scope, because of the combination of a wealthy civilian sector and a large army presence in the same province'.[730] Even with what he describes as a distinct social and cultural separation between the civilian population and the military, their sheer physical proximity – being stationed within the same urban settlements – stimulated economic interaction.[731] And both as individuals spending their pay, as well as a funded institution acquiring supplies, the presence of the army meant the presence of an additional market for local goods and services, essentially increasing the purchasing power of a community.

Looking at the settlements with a military presence, an interesting city is Seleucia Pieria. It was certainly one of several exceptionally large settlements in the region (even though we should take into account that a considerable part of the walled area includes slopes of the acropolis, where habitation will have been limited). At the same time, its territory is severely constrained, so we can be reasonably certain that the Seleucians did not just live off locally cultivated food. The city's importance for the logistics involved in supplying the armies during the Parthian conflicts is obvious. In his 1985 article Denis van Berchem paints a clear picture of the challenges involved and potential supply routes to support the campaigns in the east. He

[728] Hopkins, 'Taxes and Trade'.
[729] Hopkins, 111, 112.
[730] So, partly in disagreement with Hopkins' sixth proposition, on how integrated the monetary economy was. Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 211, 241–42, 253; See also Hopkins, 'Taxes and Trade', n. 33, Pollard essentially argues for Hopkins' 'counter-hypothesis' that at least here, we are looking at a more localised monetary economy with limited impact on other regions.
[731] Pollard, *Soldiers, Cities, and Civilians in Roman Syria*, 165–67.

suggests that the Syrian fleet based in Seleucia played a central role in this logistical puzzle.[732] A further example are the canals that were dug to facilitate river transport to Antioch, and beyond it over the Orontes at the very least up to Gephyra. Besides the campaigns, there is no evidence for structural military supplies being imported into the province. Even so, Seleucia was the permanent base of the fleet, which mean that there was a stable presence of military personnel, as well as potential labour requirements servicing and supplying the fleet. We can therefore assume that at least the city would have seen regular supplies.

It is safe to assume that the army used the optimal available routes for its supply chains. It is then also likely that for access to the Mediterranean, Seleucia Pieria served as the commercial port for northern inland cities like Cyrrhus, Zeugma, Edessa, Beroia, and Hierapolis, but most obviously for the city of Antioch itself. Like the examples of Acco, Tyre, and Sidon, Antioch thus had access to maritime imports, but potentially also to surplus production from these inland communities.

A good number of other cities can also be considered to be military towns. We've discussed garrisons at cities on the Euphrates like Zeugma and Dura Europos, in all Mesopotamian cities, in southern cities like Aelia Capitolina and Bostra, and, naturally, the bases of Legio and Raphanea. However, only a few of these cities are 'too big' for their hinterlands (or exceptionally large to begin with), and certainly not to the degree of Seleucia Pieria. It seems that for these cities, the presence of a garrison did not stimulate urban growth as much as, say, the commercial potential of a city.

3.2.4.1 Palmyra as a commercial centre and the caravan cities

Another example of a mismatch between estimated local food production and city size, which certainly deserves to be highlighted, is the much-discussed city of Palmyra. It will be discussed in some more detail simply because it is one of the few settlements in the study area actually offering considerable evidence for its trade activity. The characterisation once given by Rostovtzeff of Palmyra as a caravan city is not altogether undeserved, as a large body of inscriptions attest to caravans going as far as Spasinou Charax on the Persian Gulf, and there is evidence of Palmyrene presence even further away, for instance merchants returning from India (travelling on a ship owned by a Palmyrene).[733] It should be noted that the majority of the Palmyrene caravan inscriptions are dated between 130 and 161 C.E., while under the Severans only three are known, and none between 211 and 247 C.E. As Sartre states, perhaps this was a

[732] Berchem, 'Le port de Séleucie de Piérie et l'infrastructure logistique des guerres parthiques'.
[733] Seland, *Ships of the Desert and Ships of the Sea*, 71, 80.

sign of increased insecurity with the arrival of the Sassanids, or perhaps only a change in the epigraphic habit.[734]

Furthermore, in the other cases referred to by Rostovtzeff, in Petra, Dura Europos and Gerasa local agriculture probably played a far larger role in the local economy than trade, whether short- or long-distance, at least under Roman rule – as was also discussed above. And, as a recent article by Jiménez et al. on food security in Palmyra shows, much of what we stated about Petra above is true for Palmyra as well. They find that while Palmyra's growth into a prominent city was dictated by its role in trade networks, it nonetheless depended on local food production to sustain its population's primary needs, enabled by a well-adapted subsistence strategy and proper water infrastructure.[735]

Their detailed analysis shows that our simple estimate for regional population, just under 89.000 people, can be fine-tuned further. In the first place, whereas we took a simple urbanisation rate of 20%, so multiplied our urban estimate by 5, they looked at actual arable land, its production capacity and the amount of labour required to work said land. To start with, they assume a far larger (three day distance) catchment area than the direct market zone we used above. As there were no other urban centres around competing for production from the same area, this would certainly make sense. Within this area, they find that in optimal conditions, there are four areas of arable land that together could produce enough food to sustain a regional population of around 65.000 to 90.000 people. To produce this would require a labour force of 6.000 to 9.000 people. [736] In other words, the urbanisation rate of the Palmyrene could potentially be quite the inverse of our baseline, and we should not necessarily expect tens of thousands of people to have lived in the surrounding countryside.

Note, however, that this shows the optimal situation. They expect that this may have been possible for 5 out of every 10 years at the beginning of the first century, but deteriorated over time to 72.000 people by the second half of the third century. Reliable levels of carrying capacity, that could be achieved 9 out of every 10 years, lay considerable lower, dropping from 43.000 supported people in the early first century to 31.000 by the mid-third century.[737] As they say, food security dropped to critical levels at a point in time where considerable changes in the socio-political landscape of the Palmyrene take place.[738] The overall take-away from this is that within certain limits, the Palmyrene territory would have in fact been able to sustain an urban

[734] Sartre, *D'Alexandre à Zénobie*, 844, 850.
[735] Jiménez et al., 'Food Security in Roman Palmyra (Syria) in Light of Paleoclimatological Evidence and Its Historical Implications'.
[736] Jiménez et al., 12.
[737] Jiménez et al., 13–14.
[738] Jiménez et al., 14–16.

population of the order of magnitude we estimated above, albeit with a smaller total regional population.

That it was possible to sustain a moderate settlement in this area does not however explain the urban trajectory of this city, so let us return our focus to Palmyra's economic foundations. Seland discusses in more detail the connection between Palmyra and long-distance trade. He shows the various attested and potential routes traders from the city could have taken. The most attested caravan route, towards the Persian Gulf, likely travelled past Hit, rather than Dura Europos (in other words, the route identified by Mouterde and Poidebard, rather than that proposed by Rostovtzeff). As the Palmyrene community in Dura shows, trade with the city took place, but was of lesser significance. The route took about a month from Palmyra to Spasinou Charax, partly overland, partly using rafts down the Euphrates. A limited period with optimal conditions for travel, as well as the specific timeframe for goods to arrive from the Indian Ocean due to sailing seasons, make it likely that caravans only travelled once a year along the route.[739] In addition, Seland shows potential routes towards the Mediterranean, either northwest towards Antioch or west through the Homs gap, or potentially by way of Damascus, although this required crossing the Lebanon and Anti-Lebanon. He also considers it likely that for funerary needs, goods like myrrh (also mentioned in the Palmyrene tax law) were in fact brought from the Red Sea in the south.[740]

Concerning trade from the city towards the west, Michał Gawlikowski warns that besides a single mention by Galen of Indian goods arriving in Phoenicia by camel, there is no other evidence at all.[741] With Nabatean trade already reaching Gaza and thus covering the southern Levant, and Antioch more easily reached from the east by way of Zeugma, he supposes it more likely that Palmyrene trade was focused mostly on the region of central Syria, rather than towards Rome and the Mediterranean. Even so, he considers trade to have been the major source of income for the Palmyrene economy.[742] Seland, however, suggests that trade by way of Palmyra towards the Mediterranean reached the sea at the start of the sailing season, while routes towards the Mediterranean across the Red Sea and the Nile only arrived at the end of the sailing season. As such, direct competition between traders using the different routes was limited, and the advantageous time of arrival was another incentive to carry goods further west from Palmyra.[743] Additionally, Terpstra suggests that the Palmyrene temple in Rome is evidence

[739] Seland, *Ships of the Desert and Ships of the Sea*, 45–61.
[740] Seland, 53–54.
[741] Michał Gawlikowski, 'The Indian Trade between the Gulf and the Red Sea', *Polish Archaeology in the Mediterranean* 26(2), no. null (9 July 2018): 24–25.
[742] Gawlikowski, 25.
[743] Seland, *Ships of the Desert and Ships of the Sea*, 53.

of a Palmyrene trading community in the capital, which also fits in with the argument put forward by Grout.[744]

In his recent thesis, John Grout studied how Palmyrene temples may have been connected to long-distance trade. There are several indications of Palmyrene temples set up abroad along trade routes, the prime example being a temple for the *Augusti* set up in the Parthian city of Vologesias. Grout also argues that the temples of Palmyra itself played a role in facilitating trade, and at least the Vologesias example shows evidence of connections with a more remote temple. If anything, this adds another layer of depth to the view that temples played a role in the ancient economy. Furthermore, this ties in with the way that the religious 'rhythm' of Palmyra seems to have been connected to the rhythm of the caravan trade, as pointed out by Seland.[745]

In Seland's view, Palmyrene trade depended on a trust network developed over time. The routes required access to camels (and related factors such as grazing grounds), the security offered by stations and caravan leaders, and access to information and social ties with trade partners or authorities, offered by expatriate trade communities.[746] A strong ethnic identity based on the Palmyrene polity formed the basis of this trust network, sharing kinship and tribal ties as well as legal and civic institutions.[747] Seland does find that the model needs to be expanded with the personal role of elites, who maintained (external) ties with camel nomads and allowed the Palmyrene network to functioning within the Roman and Arsacid imperial framework.[748]

Either way, it is clear that Palmyra saw considerable commercial activity, and inscriptions by the Palmyrene elites clearly reveal that they were actively involved. Whether they were Will's landed aristocrats and military men, Rostovtzeff's merchant princes or Sommer's universal tribal leaders, powerful Palmyrene notables were honoured by Palmyrene merchants for organising, supporting or protecting the caravans.[749] Gawlikowski points out a nice detail: 20 out

[744] Grout, 'The Role of Palmyrene Temples in Long-Distance Trade in the Roman Near East', 112; Taco T. Terpstra, *Trading Communities in the Roman World: A Micro-Economic and Institutional Perspective*, Columbia Studies in the Classical Tradition ; Vol. 37. 802459145 (Leiden [etc.]: Brill, 2013), 152–60.
[745] Grout, 'The Role of Palmyrene Temples in Long-Distance Trade in the Roman Near East', 228–31, 267–75; Seland, *Ships of the Desert and Ships of the Sea*, 45–61.
[746] Seland, *Ships of the Desert and Ships of the Sea*, 63–74, 80.
[747] Seland, 74–85.
[748] Seland, 25.
[749] See for a more detailed overview: Michał Gawlikowski, 'Trade Across Frontiers: Foreign Relations of a Caravan City', in *Palmyrena: City, Hinterland and Caravan Trade between Orient and Occident*, ed. Jørgen Christian Meyer, Eivind Heldaas Seland, and Nils Anfinset (Oxford: Archaeopress Publishing Ltd, 2016), 19–28; Michael Sommer, 'The Venice of the Sands: Palmyrene Trade Revisited', in *Palmyrena: City, Hinterland and Caravan Trade between Orient and Occident*, ed. Jørgen Christian Meyer, Eivind Heldaas Seland, and Nils Anfinset (Oxford: Archaeopress Publishing Ltd, 2016), 11–18.

of 59 statues that were set up in the Palmyrene agora honoured leaders and benefactors of caravans, while the rest mostly honoured their recipients without any specification.[750]

The tax law gives a list of goods and the taxes exacted at import and export, mentioning high-value goods such as slaves, perfumed oils, bronze statues, and purple-dyed fleeces, as well as less spectacular items such as dry goods, dried fish, and animal fat. In the case of slaves, in the 'new law', the export tax is split up into the sale of slaves in the city itself and their actual export.[751] The tax law additionally mentions monthly taxes for workshops, bazaars, sellers of unguents and prostitutes. The 'old law' furthermore mentions salt and water coming from the territory, and the taxation on animals brought into the territory, such as camels (loaded as well as unloaded), but also animals for slaughter and sheep to be sheared. Furthermore, for animals from outside the territory, grazing rights have to be paid. Interestingly, foodstuffs coming from within the territory are explicitly not taxed.[752]

The law gives considerably more insight into commercial activities taking place in Palmyra and its territory than is known from any other city in the region. Notably absent, as many others have stated before, are most of the high-value luxury goods expected to have played a role in long-distance trade.[753] To assume that it only dealt with local consumption is nonetheless clearly incorrect, as export taxes are indicated for all goods as well. Gawlikowski supposes that international trade was "of course controlled by Imperial agents."[754] While there are clearly two *publicani* known from the city in the first century, curiously enough, only their role in establishing these municipal taxes can be confirmed, while there are no links with imperial taxation.[755] Seland suggests a situation wherein the inspection of goods did take place at Palmyra, but actual taxation only in Antioch, similar (perhaps) to goods transported under seal through Egypt to Alexandria.[756] Safest to say is that the details remain hazy at best.

Further evidence for exchange comes from pottery finds in the city. A recent study discussing amphora finds from Syrian-German excavations shows the presence of amphorae from many parts of the empire (including southern France, Italy and Rhodes), as well as Parthian amphorae, ranging from the third century B.C.E. (with additional evidence from three Hellenistic amphora

[750] Gawlikowski, 'The Indian Trade between the Gulf and the Red Sea', 26.
[751] Sartre, *D'Alexandre à Zénobie*, 821–22; J. F. Matthews, 'The Tax Law of Palmyra: Evidence for Economic History in a City of the Roman East', *The Journal of Roman Studies* 74 (1 January 1984): 174–80, https://doi.org/10.2307/299013.
[752] Sartre, *D'Alexandre à Zénobie*, 821–22; Matthews, 'The Tax Law of Palmyra', 174–80: camel skins, apparently, are also tax-free.
[753] Matthews, 'The Tax Law of Palmyra', 172; Seland, *Ships of the Desert and Ships of the Sea*, 30–31.
[754] Gawlikowski, 'Palmyra as a Trading Centre', 28.
[755] Michał Gawlikowski, 'Deux publicains et leur tombeau', *Syria. Archéologie, Art et histoire* 75, no. 1 (1998): 145–51, https://doi.org/10.3406/syria.1998.7545.
[756] Seland, *Ships of the Desert and Ships of the Sea*, 53–54.

stamps from Rhodes) to the end of the third century C.E. Transported goods included the usual set of wine, garum and/or olive-oil. The same goes for tableware, with besides considerable local production, imports from both empires, including large amounts of Eastern Sigillata A (Roman tableware produced in northern Syria, possibly in the Antiochene) and Parthian glazed wares.[757] And clearly, wine imports continued into the later Roman period as well.[758] Perhaps the number of finds is not of the order of magnitude needed for solid analyses that may suggest changes over time in trade directions or volumes, but they do reinforce the idea that the settlement was clearly connected with both the Roman and Parthian empires, long before the city gained its monumental qualities in the later centuries of its existence.

What emerges is that for a city that generated so much evidence of trade over land, what we find among the goods being traded and taxed were not just expensive and exotic goods from far afield, but also regular goods and foodstuffs. One wonders then to what degree local agricultural production was supplemented by imported goods. Perhaps (or probably) these were goods coming from neighbouring regions, as it is hard to imagine the exorbitant cost of importing, for instance, dried fish overland from Persia. Most importantly, it shows that even with transport by camel, it could still be worth the effort to bring in lower-value bulk goods. One option could be that low value goods were transported as return cargoes from more lucrative outbound trade. Profits made on the outbound trip would then cover any transport expenses made for the return. Consider comparable arguments that are made in the context of for instance tableware in maritime trade.[759] Lucinda Dirven suggests for instance that Palmyrenes traded down the Euphrates by way of Dura Europos, while importing foodstuffs (and possibly wine) back from that city with returning camels.[760] But see also Seland's arguments for a route towards Hit instead of Dura Europos which would avoid taking rafts over a particularly difficult stretch of the river. Based on water sources, sites studied by Poidebard and Stein and a good dose of network analysis, he identifies an overland route that bypasses Dura entirely.[761] We should in any case not be too dismissive of the possibilities for coastal cities to actually import the food necessary for their population, as these would have had access to far cheaper transport by sea.

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[757] Andreas Schmidt-Colinet and Waleed Al-As'ad, eds., *Palmyras Reichtum durch weltweiten Handel. archäologische Untersuchungen im Bereich der hellenistischen Stadt / Band 2, Kleinfunde*, vol. 2 (Place of publication not identified Holzhausen der Verlag, 2013), 20, 269–76.
[758] Grzegorz Majcherek, 'Filling the Gap: Mediterranean Amphorae in Late Antique Palmyra', *Syria. Archéologie, Art et Histoire*, no. 96 (31 December 2019): 395–418, https://doi.org/10.4000/syria.10620.
[759] Elizabeth Fentress et al., 'Accounting for ARS: Fineware and Sites in Sicily and Africa', in *Side-by-Side Survey* (Oxbow Books, 2016).
[760] Dirven, *The Palmyrenes of Dura-Europos*, 38–40.
[761] Seland and Meyer, 'Palmyra and the Trade Route to the Euphrates'.

3.3 Conclusion

As the figures in 3.1.1 showed, the number of cities in the Roman Levant was actually quite limited, and in general they were not particularly large – This leaves Antioch in a separate category, one of the largest cities of the Roman Empire, and a handful of major centres like Seleucia Pieria (albeit smaller than sometimes suggested), Apamea and Laodicea. As a result, when looking at how much food they could have produced within their direct surroundings, we find that most cities would have been quite capable to sustain themselves from what could be cultivated within three hours' walking distance. A conclusion similar to what one sees for instance in Roman Egypt around this period, with only a few cities, like for instance the port of Pelusium, growing beyond their local agricultural ceiling.[762]

On the other hand, there are a number of exceptions. Particularly large cities, dense clusters of nearby towns, coastal cities hemmed in between the sea and the mountains, and desert cities are all examples where urban demand might outstrip local supply. A number of different solutions arose to solve the supply problem: from adaptation of farming techniques to environmental demands, alternative sources of income, andthe acquisition of food through the market. Last but not least, limiting the studied production only to three-hour 'market zones' leaves quite some open space on the map. The following chapter will look at the prime example where the actual territory of a city encompassed considerably more land than just its direct surroundings, and what this implies for its food potential.

[762] Ligt, 'The Urban System of Roman Egypt in the Early Third Century AD', 288–89.

Chapter 4 Antioch and its territory

In chapter Chapter 1 it has been demonstrated that Antioch-on-the-Orontes was by far the largest city of the Roman Near East, with a built-up area of perhaps 500 hectares. We also happen to know that Antioch had a huge administrative territory, with 4,500 km^2 representing a reasonable estimate for the amount of land controlled by the city. These observations raise a number of further questions.

One of these concerns the capacity of Antioch's rural territory to sustain the urban population. In an article which appeared 40 years ago, Hopkins argued that the food crops produced in Antioch's territory cannot have been enough to feed the city. On this basis he asserted that the city must have imported large amounts of food from other areas.[763] Since these imports had to be paid for, it would follow from this that Antioch also exported large amounts of manufactured goods. The validity of this line of reasoning can only be assessed by estimating the size of the urban population and by comparing the outcome of this exercise with population estimates based on the carrying capacity of Antioch's rural territory.

The vast size of Antioch's administrative territory also raises important questions regarding the economic functions performed by the cities and towns of the Roman Near East. As has been explained in Chapter 3, in pre-modern societies the typical catchment area for a market town is believed to have been a two to three hour walking distance, corresponding to 10-15 kms (depending on terrain conditions).[764] A large proportion of the population of Antioch's territory lived beyond this 2-3 hour radius, if Antioch was the only urban market centre. At the same time studies of pre-modern societies strongly suggest that markets played an important role in the rural economies of most pre-modern societies.[765] Against this background we should consider the possibility that Antioch's vast territory contained a considerable number of 'secondary agglomerations' which served as market centres for the inhabitants of the surrounding rural districts. Do we have any archaeological evidence for the existence of such secondary centres? And if such centres existed, were they spread in such a way that most or all of the inhabitants of Antioch's administrative territory lived within walking distance of at least one secondary town or village providing various 'central-place' functions?

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[763] Keith Hopkins, 'Models, Ships and Staples', in *Trade and Famine in Classical Antiquity*, ed. Peter D. A. Garnsey, Keith Hopkins, and C. R. Whittaker (London: Chatto & Windus, 1983), 89.
[764] Willet, *The Geography of Urbanism in Roman Asia Minor*, 157–58; Bintliff, 'Going to Market in Antiquity'.
[765] L. de Ligt, *Fairs and Markets in the Roman Empire: Economic and Social Aspects of Periodic Trade in a Pre-Industrial Society* (JC Gieben (Amsterdam), 1993).

4.1 Territory size, population and urbanisation

4.1.1 The size of Antioch's administrative territory

The extent of the Antiochene is relatively well defined. In their study of the dead cities, Tchalenko and Seyrig were able to distinguish between the Antiochene and the territories of its surrounding cities on the basis of the eras used on dated inscriptions, as the other cities kept using a Seleucid era, while Antioch's was a Caesarian era, starting in 49 B.C.E..[766] Following from that, the southern part of Jebel Zahwiye was shown to be Apamean territory, but the northern half of that jebel (from Ruweiha and Rayan) used an Antiochene era. The same counts for inscriptions from several locations in the northern jebels.[767] This has also been confirmed by J. and J. Ch. Balty, who identified a number of villages described as being part of the Apamean territory, which had been mentioned in inscriptions found throughout the empire. The villages correspond well to the border given by Tchalenko and Seyrig, as none appears to lie north of Al-Bara.[768] Towards the northeast, the inclusion of Gindarus to the Antiochene is also proven this way, as mentioned by Cohen, although following Strabo, Gindarus would still have been considered as part of the Cyrrhestice.[769] But besides an Antiochene era inscription from 106 C.E., the place is also mentioned several centuries later by Theodoret as a village controlled by Antioch.[770]

For determining the western limit of Antioch's territory, the map by Seyrig and Tchalenko falls short. However, between Antioch and Seleucia, the border must have lain somewhere south of Daphne. Without any better data, the best approach available here has been to take as a limit the mountain stream called Büyuk Karaçay, ancient Melas, roughly hallway upstream from the shore to Antioch.[771] Considering however the limited distance between Daphne and Seleucia and the mountainous terrain between them, the difference caused by taking a border closer to Seleucia would only make a limited impact on the overall picture (at most 60 km^2). For the remainder, a straight line has been drawn towards the westernmost site surveyed by Tchalenko. The resultant area can be seen in Figure 52. Clearly, this extends a lot further than the 2 to three hour

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[766] Georges Tchalenko, *Villages antiques de la Syrie du Nord: le massif du Bélus à l'époque romaine*, vol. 1 (Paris: Geuthner, 1953), 422–23 note 3; Tchalenko, *Villages antiques de la Syrie du Nord*, 1953, 3:11-14: inscription 10a; 57 fig. 7.
[767] Tchalenko, *Villages antiques de la Syrie du Nord*, 1953, 3:22 no. 21; Georges Tchalenko, *Villages antiques de la Syrie du Nord: le massif du Bélus à l'époque romaine*, vol. 2 (Paris: Geuthner, 1953), plan LXXX.
[768] Janine Balty and Jean-Charles Balty, 'L'Apamène Antique et les limites de la Syria Secunda', in *La géographie administrative et politique d'Alexandre à Mahomet: actes du colloque de Strasbourg 14 - 16 juin 1979* (Brill Archive, 1979), 57–59, 72 note 147, 73: I was unable to locate 'Zabboude', 'Kerratın', 'Rbe'a', 'Meyzın' and 'Bsilla'.
[769] Strabo, 16.2.8.
[770] Cohen, *The Hellenistic Settlements in Syria, the Red Sea Basin, and North Africa*, 170–71, referring to Theodoret, Philotheos hist. 2.9.
[771] Pamir and Brands, 'Asi Deltası ve Asi Vadisi Arkeoloji Projesi: Antiocheia, Seleuceia Pieria ve Sabuniye Yüzey Araştırmaları 2004 Yılı Çalışmaları', 99, image 1.

'market' zone from chapter 3.2.1.3 would allow. In 4.2 we will take a closer look at the secondary agglomerations that may have fulfilled an intermediate role throughout the area.

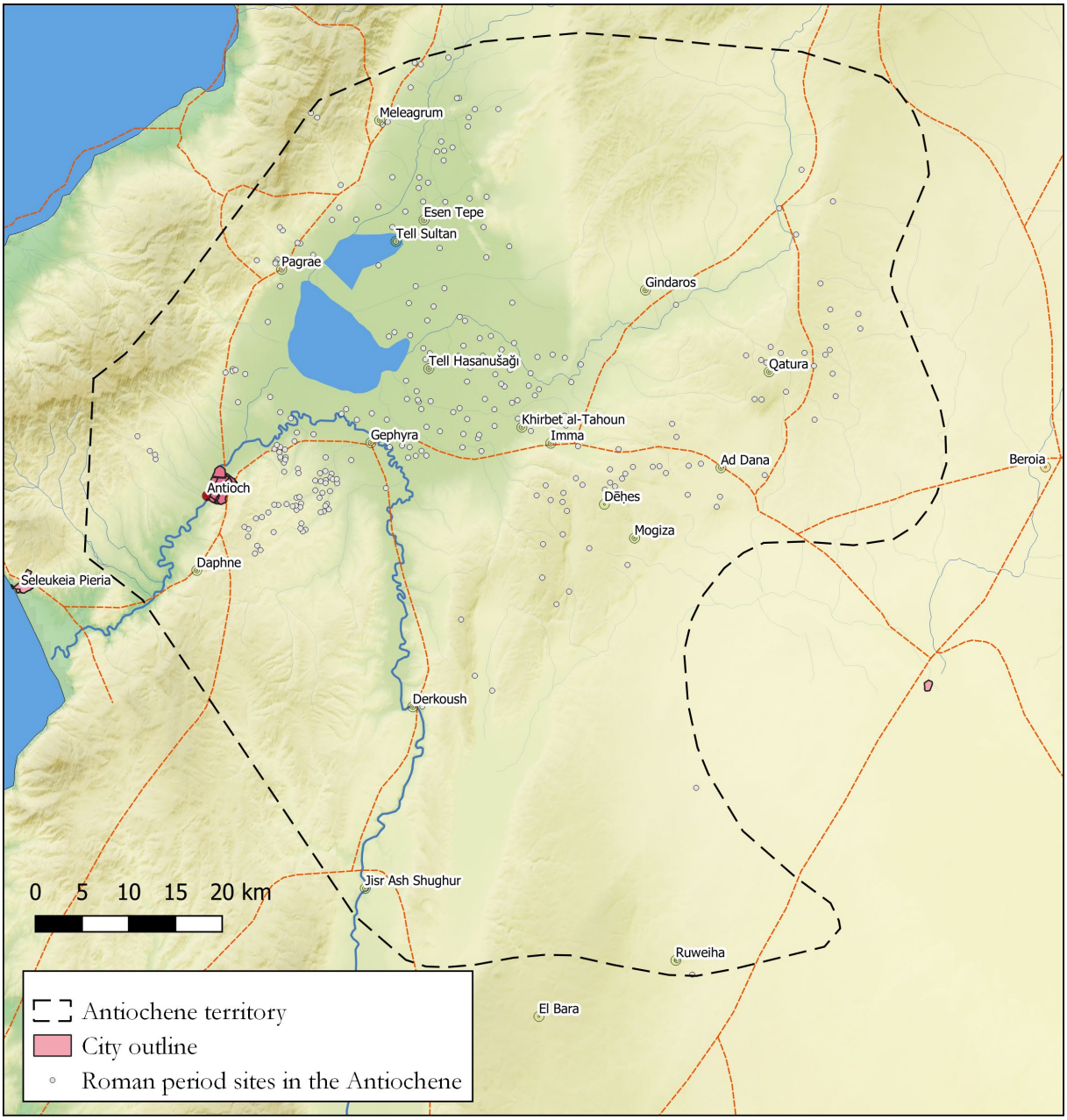

Figure 52 The territory of Antioch

In Figure 53 the areas marked in grey and dark green (42,000 hectares) indicate mountainous areas unsuitable for habitation or cultivation due to high slope and elevation, 28,000 consisting of the wooded mountain slopes of the Amanos. Furthermore, in red, there are large sections of rugged or broken terrain with a high variation between changing elevation and flat areas. These would probably only be partly cultivable, and amounts to about 202,000 hectares. Secondly, the dashed grey zones show those parts of the territory for which no survey data are available (20% of the region), and in fact overlap three quarters of the area marked as rugged terrain, leaving

55,336 hectares of rugged terrain in the Jebels that were surveyed. Liebeschuetz estimated the total area mapped out by Seyrig to be between 600,000 and 700,000 hectares.[772] Measurements of the area mapped here show that he is essentially correct, with 653,300 hectares, minus 42,000 hectares of uninhabitable terrain and at least 6,000 hectares for the lake, leaving 605,300 hectares of cultivable land in the Antiochene territory. Of course it is possible that habitation had not spread throughout the entire territory around 250 C.E. In fact, the evidence collected by Tchalenko suggests that the fourth and fifth centuries witnessed significant population growth in the Massif Calcaire.[773] For the purposes of the present study (which focuses on the mid-third century C.E.) the estimate of 605,300 hectares must therefore be regarded as a maximum figure.

[772] J. H. W. G. Liebeschuetz, *Antioch : City and Imperial Administration in the Later Roman Empire* (Oxford: At the Clarendon Press; London etc, 1972), 40–41.
[773] See also Jesse J. Casana, 'Mediterranean Valleys Revisited: Linking Soil Erosion, Land Use and Climate Variability in the Northern Levant', *Geomorphology* 101, no. 3 (15 October 2008): 437, 439, https://doi.org/10.1016/j.geomorph.2007.04.031.

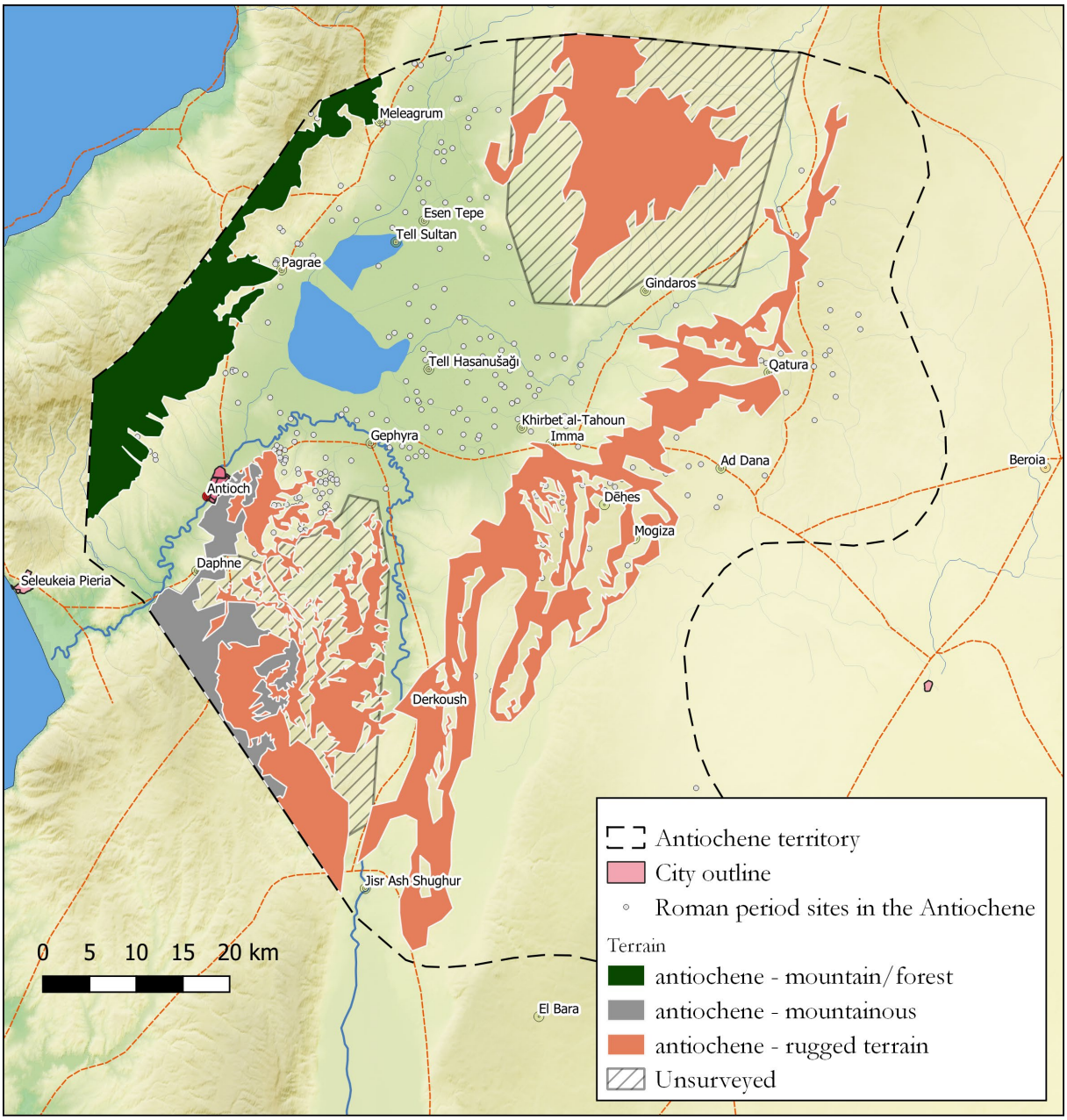

Figure 53 Antiochene terrain with terrain classification

In 1938 the province of Latakia, the most densely populated province of Syria at that time, had 0.61 inhabitants per hectare (including non-arable land). However, as Liebeschuetz observed long ago, overall population densities in the territory must have been higher, for the simple reason that in 1938 only half of the arable land was actually under cultivation.[774] In an article dealing with early-Byzantine Syria, Peña (1997) calculates that the 61 villages of the Djebel Barisha had 21,000 inhabitants, implying an average density of 1 person per hectare for this area. For the Djebel A'la he calculated a density of only 0.53 inhabitants per hectare, but this might be due to a lower rate of preservation of archaeological remains. On any view the

[774] Liebeschuetz, *Antioch*, 41 note 2.

population of the city must be added to that of the densely populated countryside. Based on these admittedly imperfect indications, the average population density in Antioch's rural territory may be estimated as at least 1 person per hectare of arable land, implying a total population estimate of *c*. 600,000 (for city and territory).

4.1.2 Urban population densities in the Roman empire

In an article dealing with the size of urban populations in the Roman empire Andrew Wilson argues that urban population densities are likely to have ranged between 100 inhabitants per hectare and 400 inhabitants per hectare, with 150-250 inhabitants per hectare representing the most common values. Higher concentrations are known in Rome and Ostia, but in a similar fashion he writes that in Alexandria, and if Alexandria had a population of 500,000, as may well have been the case, it would have been 517 inhabitants per hectare. Wilson claims the latter figure to be "high, but quite conceivable, given the likelihood of multi-storey apartment blocks in the capital [of Egypt]"[775] His figures only focus on the intra-mural parts of the city, but subtract areas of uninhabitable terrain and use a lower average density for monumental areas.[776]

For the cities of Roman Africa as a whole Wilson operates with a high urban population figure of 200 persons per hectare. This figure is based on an analysis of urban population densities in a handful of city quarters displaying an orthogonal lay-out, such as Timgad. We can be certain that population densities in many unplanned cities in Roman North Africa were considerably lower. For the cities of Roman Asia Minor Wilson operates with an estimate of 150/ha. While such a figure looks realistic for some cities, it has been criticised as too high for urban centres which were loosely organised (Willet 2020). In the case of Egypt Wilson arrives at densities of between 156 and 185/ha, but Memphis is credited with between 185 and 258 inhabitants per hectare/ha, Hermopolis Magna with 232-247 inhabitants per ha. The biggest exception is Alexandria, with perhaps more than 500 inhabitants per hectare.[777].

[775] Andrew Wilson, 'City Sizes and Urbanization in the Roman Empire', in *Settlement, Urbanization, and Population*, ed. Alan Bowman and Andrew Wilson (Oxford University Press, 2011), 176–77, 185 but note that the basis for the population of Alexandria is no stronger than that of Antioch. The figure might be significantly lower.
[776] Wilson, 170–71.
[777] Wilson, 183–87.

4.1.3 Population densities in the cities of Ottoman Syria

There is a significant amount of demographic data available from several centuries of Ottoman rule in Syria, among which the 19th century *salnames* (yearbooks) of the vilayets (provinces) Haleb and Suriye are of particular value.

Of course, figures from the 19th century can in no way be applied as a substitute for data lacking in the Roman period. Too many differences in political, social and economic organisation, ranging from different forms of territorial organisation, land ownership and taxation to altered attitudes towards commerce and inheritance, clearly stand in the way of that. In addition, the 19th century itself saw a number of reforms or attempted reforms in all those fields. Furthermore, while industrialisation may have come later, the Ottoman Empire certainly did not remain untouched by global economic changes.[778] Nonetheless, the 19th century Ottoman data offer the most detailed perspective on a still mostly pre-industrial society in the same area that is being studied here. As such, it can provide a frame of reference or highlight the possibilities for other periods.

Since the territory of Roman Antioch lay within the boundaries of the Ottoman vilayet of Haleb, it seems reasonable to start with this city. In the Seleucid and Roman period Aleppo was known as Beroia (see Figure 54). Although it seems to have been a major trade centre in a fertile and strategic location, it was clearly overshadowed by Antioch and Damascus. However, under Ottoman rule, it became a provincial capital of its own, no longer ruled from Damascus.[779] Aleppo played an important role in the trade of Iranian silk, and the ups and downs of this trade had an important impact on urban development. This was reflected in a slowdown of public construction and probably population growth in the first half of the seventeenth century due to climatic and political instability. While it seemed to have prospered again in the following century, in the final quarter of the 18th century and the first of the 19th, it once again endured a series of crises: political upheaval, revolts, plagues and an earthquake were enough to make a

[778] See for instance Şevket Pamuk, *The Ottoman Empire and European Capitalism, 1820-1913: Trade, Investment and Production* (Cambridge: Cambridge University Press, 1987); Şevket Pamuk, 'Institutional Change and Economic Development in the Middle East, 700–1800', in *The Cambridge History of Capitalism*, ed. Larry Neal and Jeffrey G. Williamson, vol. 1 (Cambridge: Cambridge University Press, 2014), 193–224, http://dx.doi.org/10.1017/CHO9781139095099.008.

[779] Edhem Eldem, Daniel Goffman, and Bruce Masters, *The Ottoman City between East and West : Aleppo, Izmir, and Istanbul*, Cambridge Studies in Islamic Civilization 841459630 (Cambridge: Cambridge University Press, 1999), 17–22.

large impact on the urban population.[780]

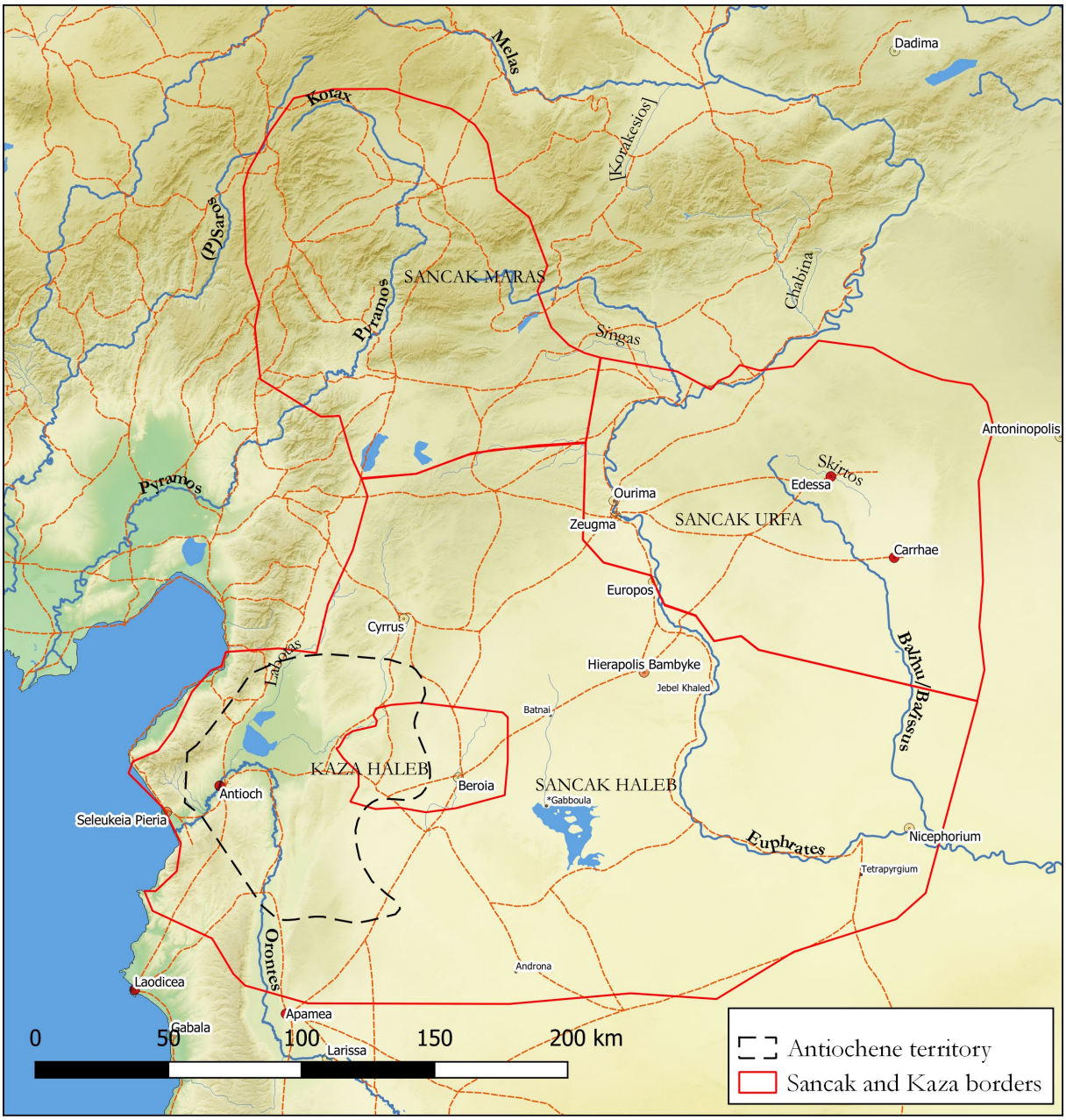

Figure 54 Sancaks in the vilayet of Haleb, with Roman settlements for reference

In an important article Jean Sauvaget managed to map the evolution of the city's physical extent during a period of four centuries. As calculated by André Raymond, it follows from Sauvaget's plans that the total built-up area of the town expanded from 238 to 349 hectares between the sixteenth and the nineteenth centuries. Of this area, 91 hectares were suburban in the sixteenth

[780] André Raymond, 'Alep à l'époque Ottomane (XVIe-XIXe Siècles)', *Revue Du Monde Musulman et de La Méditerranée* 62, no. 1 (1991): 277–80, https://doi.org/10.3406/remmm.1991.1525; but compare also Eugen Wirth, 'Alep Dans La Première Moitié Du XIXe Siècle : Un Exemple de Stabilité et de Dynamique Dans l'économie Ottomane Tardive', *Revue Du Monde Musulman et de La Méditerranée* 62, no. 1 (1991): 133–49, https://doi.org/10.3406/remmm.1991.1528, who places a far greater emphasis on the role of the internal trade of the Ottoman empire for the economy of Aleppo.

century, rising to 198 in the nineteenth, growing along the main commercial routes from the larger gates.[781] Raymond himself argued, based on older maps and lists of quarters from various centuries, that most of this expansion had already taken place by the end of the sixteenth century, but that the city declined in the seventeenth century, before starting to grow again in the eighteenth.[782]

According to Raymond, the population of the city rose from 75,000 in the late sixteenth, to 115,000 in the late seventeenth century, despite the decline he argues to have taken place in the first half of the seventeenth century. To be more exact, the data he used, referred to by a French consul in the seventeenth century, indicate a rise from 9,049 to 13,854 hearths or households; so Raymond's calculations are based on a multiplier of about 8 persons per hearth.[783]

In his article on the Damascene population, Jean-Luc Arnaud has gone into more detail into the issue of *khânas*, translated either as houses, hearths, or households, as they have served as the basis of population estimates by the Ottoman administration as well. He shows that for 1870s Damascus, figures lay around 6 persons per *khâna*, but with a variation on the one hand between 5 and 10 throughout the different regions of the Syrian vilayet, and a variation on the other hand between different faiths.[784] Within the *sancak* of Aleppo itself, figures for the cities at the end of 19th century (more on which later) show a range of between 5 and 7 inhabitants per house, and in Aleppo itself no less than 8.8 inhabitants.[785]

Tahrir tax records indicate Aleppo had 8,430 registered taxpayers in 1584, in fact having declined from higher figures earlier in the century (11,224 in 1519, to 8,883 in 1526).[786] The taxpayers mentioned in the *tahrirs* are supposed to represent the adult male population, without those exempt from taxation, such as garrison soldiers and slaves. Problems of census evasion and an increase in military enlistment have been used to argue for adding 20% to resultant population figures. On the other hand, it has been voiced that for counts based on adult males, a far lower multiplier than Raymond's eight should be employed, as adult males tend to comprise

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[781] Sauvaget, Alep, fig. LVI–LXX; Raymond, 'La Conquête Ottomane et Le Développement Des Grandes Villes Arabes', 128 and 132. Raymond's figures imply an estimate of 147-151 hectares for the size of the area enclosed by the town wall. Raymond's figures imply an estimate of 147-151 hectares for the size of the area enclosed by the town wall.
[782] Raymond, 'La Conquête Ottomane et Le Développement Des Grandes Villes Arabes', 127.
[783] Raymond, 'Alep à l'époque Ottomane (XVIe-XIXe Siècles)', 101.
[784] Jean-Luc Arnaud, 'La population de Damas à la fin de la période ottomane', *Annales de démographie historique* 101, no. 1 (1 May 2001): 186–88, 204, tables 5 and 6.
[785] Vital- Cuinet, *La Turquie d'Asie : géographie administrative, statistique, descriptive et raisonnée de chaque province de l'Asie-mineure*, vol. 2 (Paris: Leroux, 1892), 177–224. Although it is not entirely clear if the given the number of houses, 14.500, is that of the entire agglomeration.
[786] Suraiya N. Faroqhi, 'Ottoman Population', in *The Cambridge History of Turkey*, ed. Suraiya N. Faroqhi and Kate Fleet, vol. 2 (Cambridge: Cambridge University Press, 2012), 380, http://universitypublishingonline.org/ref/id/histories/CHO9781139049047A024.

a quarter to a third of the general population.[787] If adult males (excluding slaves and servants) accounted for one quarter of Aleppo's population in 1584, applying a correction factor of 1.2 results in a population estimate of approximately 40,000. Nonetheless Raymond's much higher estimate of 75,000 continues to be regarded as being of the right order of magnitude, in part because the expansion of the built-up area and the construction of new religious and commercial buildings suggest growth rather than decline.[788]

Skipping the 18th century because of missing figures, we find a figure of 120,000 inhabitants around 1800, dropping in several decades to 70,000 in 1837. By 1892 however, the city appears to have regained its former levels of population. In his survey of the Ottoman empire Cuinet credited Aleppo and its thirteen suburbs with 127,000 inhabitants.[789] This figure refers to the joint population of all settlements which were situated within an area with a perimeter of no less than twelve kilometres. The size of this area must have been at least 1,150 hectares. Within this vast area the population of the 349 hectares occupied by the old city (delimited by the city wall) and the continuously built-up areas adjoining this nucleus stood at approximately 98,000.[790]

All in all, before the 20th century, the size of the urban population appears to have been oscillating between 70,000 and 100,000.

For urban densities, this means the following. If at the end of the sixteenth century, when Aleppo had a population of 75,000, its surface area was 238 hectares, we would have about 315 inhabitants per hectare. However, if, as Arnaud claims, it had by that time already expanded towards the higher 349 hectares, this figure would have to be lowered to 215/ha. Within the 170 hectares enclosed by the wall of the early fifteenth century densities appear to have been higher. According to Raymond this part of the city was home to about 42,500 inhabitants in 1537, implying a density of 250 inhabitants per hectare.[791]

Based on the population estimate of 70,000 for the 1830s, the city had 201 inhabitants per hectare in this period, and this seems reasonable as a lower limit. The population figure of 98,000 for the end of the 19th century implies an upper limit of 280 inhabitants per hectare, on the simplifying assumption that the built-up area had not expanded since the mid-nineteenth century.[792]

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[787] Faroqhi, 362–63; Arnaud, 'La population de Damas à la fin de la période ottomane', 180.
[788] Faroqhi, 'Ottoman Population', 381.
[789] Arnaud, 'La population de Damas à la fin de la période ottomane', 206.
[790] André Raymond, 'The Population Of Aleppo In The Sixteenth And Seventeenth Centuries According To Ottoman Census Documents', *International Journal of Middle East Studies* 16, no. 04 (November 1984): 447–60, https://doi.org/10.1017/S002074380002849X.
[791] Raymond.
[792] Sauvaget, *Alep*, fig. LXX.

Similar figures can be obtained for the city of Damascus. In size, the city of Damascus grew from 212 to 420 hectares between the sixteenth century and 1860, around a walled centre of 137 hectares.[793] Similarly to Aleppo, the *tahrirs* show that the city counted 10,423 registered taxpayers in the 1520s, but only 7,778 in 1595, although the built up area of the city expanded.[794] Arnaud's population estimate for the late 16th century, when the city occupied an area of c. 230 hectares, is 55,000, implying a density 239 inhabitants per hectare.[795]

In the case of Damascus, population estimates for the urban population are easier to obtain than in the case of Aleppo. The main reason for this is that in the case of Damascus the *salnames* show the population of the city of Damascus itself, whereas those for Aleppo refer to the entire *sancak*. This is not to say that the surviving evidence is totally unproblematic. For instance, one *salname* only provides the number of *khanas*, and several others only the male population. Some of these *salnames* were copied from previous years.

Based on a careful analysis of the evidence Arnaud concludes that Damascus had about 87,500 inhabitants in 1786. This figure increased to about 136,000 in 1860, implying an average annual growth rate of 0.6%. In 1860 the urban population declined by approximately 10,000, after the massacre of 5,000 Christian inhabitants, the flight of survivors, and the punitive conscription of 3,000 males into the army, but by 1886 it had risen to 134,800 (a figure derived from the *salname* of that year, corrected by about 19%).[796] If a similar correction is applied to the population figures for the end of 19th century, we obtain an estimate of over 170,000 inhabitants.

Arnaud has convincingly argued that Volney's population estimate of 40,000 for 1785 must refer only to those living in the inner city. With 137 hectares, this gives a density of 290/ha for the walled city. Of course Volney's figure must be regarded as a rough approximation. According to Arnaud, the inner city had 47,823 inhabitants in the 1930s, implying a density of 350 persons per hectare. He argues that the inner city's population remained more or less stable at least until the 1850s, as the layout of that area did not alter much.[797] Based on Arnaud's estimate of 55,000 for the entire city of Damascus in the late sixteenth century, assigning 40,000 people to the inner

[793] Raymond, 'La Conquête Ottomane et Le Développement Des Grandes Villes Arabes', 126–27; Jean-Luc Arnaud, 'Corpus Cartographique Pour l'histoire de Damas, Syrie, à La Fin de La Période Ottomane (1760–1924)', *Imago Mundi* 53, no. 1 (1 January 2001): 47, https://doi.org/10.1080/03085690108592937. By 1918 the city would have even expanded to 570 hectares.
[794] Faroqhi, 'Ottoman Population', 381.
[795] Arnaud, 'La population de Damas à la fin de la période ottomane', 178.
[796] Arnaud, 191, 194–95, 202, 205–6 tables 1, 9 and 10.
[797] Arnaud, 178–79.

city implies a rough estimate of 15,000 for the suburbs of that period. This implies a population density of *c*. 160 inhabitants for the extra-mural quarters.

The population estimate for the mid-nineteenth, when the city extended over 420 hectares, imply a density of 324 people/ha for the city as a whole and a suburban density as high as 339/ha. (Admittedly, with a population in the centre closer to the figure of the 1930s, the density of the inner city would remain higher to that of the suburbs).

4.1.4 Urban housing in the Roman and Ottoman periods

The question whether such densities would be applicable to Roman Antioch, also depends on how residential space was used. Essentially, how do Roman urban houses compare to Ottoman ones? In the nineteenth century most domestic architecture in Damascus was built in the traditional Arab style, with a single entrance and a central courtyard onto which the rooms of the house opened. Large houses had several courtyards but rarely had more than two storeys.[798] The basic design of these dwellings was similar to that of the urban courtyard houses of Roman Syria (Butcher 2003, 303).[799]

In a passage from his eleventh oration Libanius refers to the presence of multi-storied houses in fourth-century Antioch. Highlighting the agreeable living conditions prevailing in the city, he claims that "[the wind] does not stream only into the mansions of the rich and into houses of three stories, and remains suspended above lower houses and those which belong to the poor"[800] This passage suggests that low-rise domestic buildings were the norm but also shows that a considerable number of three-storied houses existed. There is textual evidence for the existence of tall tower blocks in Aradus, which was built on an island, and Tyre, which was built on a peninsula. The obvious reason for this was that the geographical settings of these cities offered little scope for lateral expansion (Butcher p. 303).

Although the amount of archaeological and literary evidence relating to domestic architecture in the Roman Near East is not exactly overwhelming, we are left with the impression that the domestic quarters of the Ottoman period did not differ dramatically from those of the Roman-imperial period.

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[798] Christa Salamandra, *A New Old Damascus: Authenticity and Distinction in Urban Syria*, Indiana Series in Middle East Studies (Bloomington: Indiana University Press, 2004).
[799] Kevin Butcher et al., 'Small Change in Ancient Beirut: The Coin Finds from BEY 006 and 045; Persian, Hellenistic, Roman and Byzantine Periods', 2003, 303.
[800] Lib. *Or.* 11.225.

4.1.5 Population estimates for Roman Antioch

In the 1930s Weulersse identified three different grids in the area occupied by Roman Antioch that could still be discerned in the layout of several streets and fields of that period. To a somewhat lesser extent this still holds true in the current situation, especially north of the Parmenios. The first two grids are those found between the river and the mountains, oriented towards the main road, with insulae of 116 x 58 m, and which in all likelihood built on the original grid laid out in the third century B.C. The difference between them is a slight difference in orientation north of the Parmenios, as the main street indicates a small change in direction from that point onwards, probably to do with the orientation of the mountains, and perhaps somewhat with the variable courses of the Parmenios. The third grid is that of the island, with insulae of 107 x 71 m, with a northwards orientation and perhaps to be dated to a later period, as Leblanc and Poccardi believe to discern traces of grid II on the island as well.[801] Note from earlier, that for the area in mountains, a fourth grid has been discerned that matches the island's orientation, but with insulae in a 2:1 size ratio like those in the first two grids, and of roughly half their size.

[801] Poccardi and Leblanc, 'Etude de La Permanence Des Tracés Urbains et Ruraux Antiques à Antioche-Sur-l'Oronte', 91–93, 123–26.

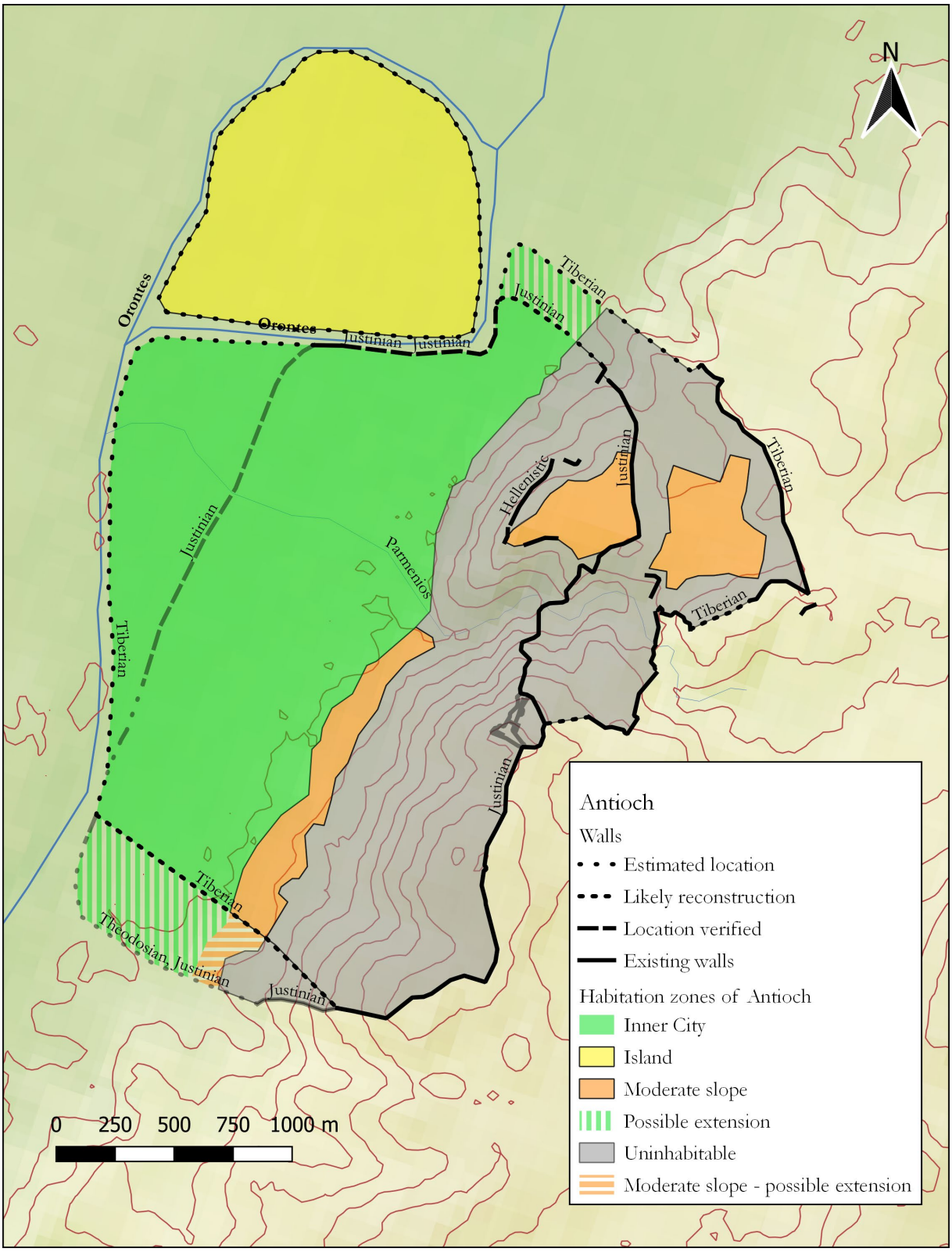

Figure 55 Urban densities in Antioch

Based on what is known about the characteristics of various parts of Antioch, it seems inconceivable that a single population density figure would be applicable to its entirety. For the island a high level of monumental buildings or public space are to be expected, even if less so than

when the Diocletian palace was built, possibly replacing a partly residential area. Additionally, one residential building, described as an urban villa, was excavated on the island. If this domicile was the norm for housing on the island, this would similarly suggest a lower building density. For the lower slopes of the mountains and the quarter in the mountains, similarly a lower density would be expected, based on Libanius' claim that "those who live on the slope of the mountain boast of the finer breezes and the peacefulness and the view over the whole city" compared to the active and industrious character he assigns to the city in general.[802] The suburbs pose an additional problem, in that densities are likely to have declined with increasing distance from the city, and there is the unanswerable question as to what level agricultural production and cemeteries competed with residential space. At the very least we have once again Libanius' description that "as soon as you pass through the gates[towards Daphne], on the left are varied gardens and charming inns and an abundance of springs and houses hidden in trees and chambers which rise above the groves and luxurious baths," followed by more houses, gardens and vineyards.[803] This certainly does not suggest a densely packed and highly populated zone.

Table 15 shows a series of possible density values for the various zones indicated within the city, the resultant population figures and the averages. Within the city proper, the high-density areas consist of the 'old city', essentially the left bank area enclosed by the walls. The low-density areas consist of the island, the quarters on Mount Staurin and the lower slopes of the Silpius. For the suburbs, we should expect far lower densities, considering that a high use of land for gardens should be expected. In the first set of densities a minimum situation is sketched. For the high density areas 250 residents/ha was chosen in line with the densities which can be calculated for the walled districts of various cities of Ottoman Syria. The lower density for the island 150, is comparable to the dense suburbs of Damascus in the 16th century. On the slopes we expect somewhat lower density compared to the island, as the terrain would be more difficult. Range 2 was chosen to be a relatively moderate estimate. Range 3 represents the highest likely density figures, with 400/ha matching Wilson's normal upper limit, and any higher would start approaching the exceptional density given to Alexandria, or even that of Ostia. Putting the low density areas at 250/ha describes these areas as being built up like a relatively densely populated city. For the suburbs, the 100/ha figure already comes across as being somewhat too high, as it implies that the suburbs were more densely populated than the average of cities in Egypt and Asia Minor.

[802] Lib. Or. 11.249.
[803] Libanius, *Or.* 11.234.

Table 15 Population scenarios for Antioch

City size			Scenario 1		Scenario 2		Scenario 3	
Area type		**hectares**	**Density**	**Population**	**Density**	**Population**	**Density**	**Population**
flat	min	280	250	70000	300	84000	400	112000
	max	310	250	77500	300	93000	400	124000
slopes and mountain	min	50	125	6250	150	7500	200	10000
	max	55	125	6875	150	8250	200	11000
island	min	120	150	18000	180	21600	240	28800
	max	150	150	22500	180	27000	240	36000
suburbs	min	30	50	1500	75	2250	100	3000
	max	280	50	14000	75	21000	100	28000
			Min total	**95750**	Min total	**115350**	Min total	**153800**
			Max total	**120875**	Max total	**149250**	Max total	**199000**

According to these three models the size of Antioch's population would have ranged between 95,750 and 199,000. It should be noted, that for higher estimated populations the level of uncertainty increases significantly, as they would require a larger portion of the population to have lived in the suburbs for which the figures are less secure, even with the relatively low estimated densities. If we accept that population densities in Roman Antioch did not exceed those which can be calculated for Aleppo and Damascus in the sixteenth-to-nineteenth centuries, and if population densities on the slopes and in the suburbs were lower than those in the densely built-up nucleus (as one would expect them to be), we end up with an estimate of between 110,000 and 150,000. Consider as well from chapter 1.2.1.1, that for the urban size the lower size estimates are more likely to be correct, all this indicates that we should probably expect a population between 110,000 and 135,000.[804]

If the three scenarios are combined with our population estimate of 600,000 for Antioch's administrative territory, we end up with an urbanisation rate of between 15.9 % and 33.2 %. An estimate of 135,000 (exactly between 110,000 and 150,000) would imply an urbanisation rate of 22.5 %. Needless to say, classifying at least some of the 'secondary agglomerations' which have been detected during the archaeological surveys of the past 100 years would result in a somewhat higher urbanisation rate. Similarly, a lower rural population figure would also increase the urbanisation rate.

[804] Note that in chapter 3 we arrived at a lower figure of 75.000 based on lower average densities that are more likely to be applicable to the other, smaller cities of the Levant.

4.1.6 Urbanisation rates in Ottoman Syria

As with urban densities, we can also see how such an urbanisation rate compares to those of Ottoman Syria. In his survey of the demographic, agricultural and industrial resources of the Ottoman empire Cuinet not only provided population figures for the various provinces (*sancaks*), but also for the central cities or towns of the administrative districts (*kazas*) of these provinces. At least in theory this makes it possible to calculate urbanisation rates.[805]

As many scholars have pointed out, Cuinet never specified the sources on which he drew when compiling his provincial surveys. His population figures are about 15% higher than those in the *salnames* of the 1880s and 1890s – in fact more modest than the 20% correction margin employed by modern scholars. Taking this adjustment into account, his overall totals do seem to correspond to those of the *salnames*.[806]

In his survey of the *sancak* of Aleppo Cuinet provides population figures for the central city but also for 13 other cities or towns. If his figures can be relied upon, the joint population of these cities and towns stood at 262,497, of which nearly half (127,149) lived in Aleppo. His total population for the *sancak* of Aleppo is 602,240 (Cuinet 1892, 163), but his population figures for the fourteen *kazas* add up to 640,687. The latter figure includes 70,000 nomads in the *kaza* of Rakka. Based on the population figures for the *kazas* and the figures for the 14 cities and towns, we obtain an urbanisation rate of 41 per cent.[807]

There are several problems with this very high figure. As has already been pointed out, Cuinet's population estimate for the city of Aleppo includes approximately 30,000 inhabitants of satellite settlements which were situated within an area of at least 1,150 hectares. A considerable proportion of the populations of these suburban agglomerations are likely to have been involved in agricultural activities. Secondly, the central 'towns' of at least some of the *kazas* appear to have been town-like villages or towns with significant agricultural populations. Cuinet himself characterizes the settlement of Djebel Sama'an (Jabal Sam'an) as a 'village' and the agglomeration of Membidj as a 'bourg'. Various other 'towns' are described as 'agricultural centres' ('centres

[805] Unfortunately, the information contained in the tahrirs of the sixteenth and seventeenth centuries do not permit us to calculate urbanisation rates, for simple reason that the registered taxpayers were concentrated in the city to a very high degree. In the seventeenth century, the city made up between 52% and 74% of the registered taxpayers of the entire vilayet, not even just the sancak of Aleppo. See Charles L. Wilkins, *Forging Urban Solidarities: Ottoman Aleppo 1640-1700* (BRILL, 2010), 55–82.
[806] Compare for Aleppo: Kemal Karpat, *Ottoman Population, 1830-1914 : Demographic and Social Characteristics*, Turkish and Ottoman Studies (Madison etc: University of Wisconsin Press, 1985), 132–33; Cuinet, *La Turquie d'Asie*, 2:114, both tables not including non-sedentary population.
[807] Cuinet, *La Turquie d'Asie*, 2:177–224.

agricoles').[808] The close involvement of at least some of Cuinet's 'urban' populations in agricultural activities helps to explain some of the astonishingly high local 'urbanisation rates' implied by Cuinet's figures. Examples include the *kaza* of Maara, where 49 % of the district's population lived in the central 'town', and that of Beïlan, where the 'urban' population accounted for 39 % of the total population. If only those urban centres which had 10,000+ inhabitants are accepted as 'urban', the urbanisation rate implied by Cuinet's figures drops to 31 %.[809] Thirdly, and perhaps most importantly, there are strong reasons to think that the Ottoman officials responsible for the registration of the population were more successful in registering town-dwellers than in registering the inhabitants of rural areas.[810] In a thoughtful discussion of Cuinet's figures for Ottoman Palestine, David Grossman has argued that the former's estimates for the Galilee and the rural districts surrounding Nablus are under-counts, while the data for the Jerusalem district are over-counts. Grossman also observed that according to Cuinet's figures the district of Acre had more urban residents than rural residents. This picture is at odds with the findings of practically all studies dealing with the late nineteenth century.[811]

If we had better population figures, and detailed data on the occupations of the inhabitants of the smaller towns, we would probably end up with an urbanisation rate of the order of 25 %. Either way, even a high estimated urbanisation rate for the Roman Antiochene would be conceivable when looking at the Ottoman figures. That said, the existence of a considerable number of 'agro-towns' inhabited by farmers, craftsmen and shopkeepers remains a highly interesting phenomenon which cannot be ignored in studies of 'urbanism' in Ottoman Syria.

4.2 Secondary settlements in the Antiochene

In the previous sections, we looked at the overall relationship between Antioch and its territory as a whole. As indicated in chapter 3.2.1.3, one would expect the rural population to require access to amenities usually offered by urban settlements. Of course, solely for the purpose of

[808] Based on the registers of 1915, A. Ruppin, *Syrien Als Wirtschaftsgebiet, Zweite, Durchgesehene Auflage* (Berlin-Vienna, 1920), 17, suggests that 43.75 % of the Syrian population might have lived in 'cities' or 'towns', but he goes to point out that most inhabitants of towns with fewer than 10,000 inhabitants had agricultural occupations.

[809] The largest towns belonging to the 2,000-10,000 range were Maara and Bab. According to Cuinet, these towns had 300 and 200 shops ('boutiques') respectively; but the much larger town of Kiliss is described as a 'centre agricole'. Cuinet, *La Turquie d'Asie*, 2:186.

[810] J. McCarthy, 'The Population of Ottoman Syria and Iraq, 1878-1914', *Asian and African Studies* 15 (1981): 14. In the case of the sancak of Haleb/Aleppo at least 15 % per cent of the population is thought to have remained unregistered (ibid. 10). According to Ruppin (1920), 12-13, between 15 % and 80 % of the populations of the various kazas of the sancak of Haleb remained unregistered. This problem was particularly acute in the kazas of Maara (50.7 % unregistered), Bab (45.2 %) and Menbidj (79.9 %).

[811] David Grossman, *Rural Arab Demography and Early Jewish Settlement in Palestine: Distribution and Poplation Density During the Late Ottoman and Early Mandate Periods* (Abingdon-New York, 2011).

bringing his main harvest to a market once a year, a farmer would most likely also be willing to make the trip from the outer edges of the Antiochene to the capital itself. But as the following will show, we do see a number of moderately sized 'secondary agglomerations' within the wider Antiochene.

The two core zones of Antioch's territory, the Amuq Valley and the Limestone Massifs have seen several major studies. In the 1930s Braidwood undertook an initial survey of the Amuq valley. His focus on tell sites resulted in a severe underrepresentation of Classical sites in his findings, which up to the publication of the new AVRP surveys gave rise to interpretations that the lowlands around Antioch were quite devoid of settlement. This stood in stark contrast to the standing remains of the Dead Cities, which were studied thoroughly by Georges Tchalenko in the 1950s.

The Amuq Valley Regional Project (AVRP), which took place in several seasons from 1995 to 2005, revisited the area surveyed by Braidwood within the borders of modern Turkey, and expanded the area to include the neighbouring upland areas in the Amanus and the Jebel al-Aqra.[812] While the initial 1995 and 1996 surveys were mostly extensive and aimed at recording known (tell-) sites, from 2001 smaller dispersed sites visible on declassified Corona imagery were studied as well. In seasons from 1997 onwards intensive off-site surveys were undertaken as well (with 20 m between field walkers, at 100 m collection interval). This was however only possible in limited areas lying under fallow or with cereal cultivation, as over 90% of the land surface was obscured by cotton plantations.

Site recovery appears to have been heavily influenced by levels of sedimentation as a result of upland soil erosion and river deposition, which vary in different parts of the valley between 0 up to 4 meters per 1000 years, and as is to be expected, site recovery was highest in those areas with little aggradation – higher levels of aggradation, up to 17 meters per 1000 years such as at Tell Atchana (Alalakh), are the result of human settlement, in this case perhaps because of monumental construction on the tell.[813]

There are still several gaps in the survey coverage within the extent of the Antiochene territory. Around the Limestone massifs, the valleys mostly lack remains of ancient settlements, as more favourable agricultural conditions encouraged continued use throughout the centuries. In Syria, the mountainous area of the Kurt Dagh, and the adjoining section of the foothills up the Turkish

[812] Casana and Wilkinson, 'Settlement and Landscapes in the Amuq Region', 25–27.
[813] Casana and Wilkinson, 30; El Ouahabi Meriam et al., 'Soil Erosion in Relation to Land-Use Changes in the Sediments of Amik Lake near Antioch Antique City during the Last 4 Kyr', *The Holocene*, 30 June 2017, 11, https://doi.org/10.1177/0959683617715702; Jesse J. Casana, 'Site Morphology and Settlement History in the Northern Levant', in *Proceedings of the 7th International Congress of the Archaeology of the Ancient Near East (7th ICAANE)*, vol. 12 (Harrasowitz Verlag Wiesbaden, 2010), 16.

border remain unsurveyed. Similarly, in Turkey, the highlands of the Amanus and the Jebel al Aqra were not covered, except for a limited area of the latter bordering the Amuq valley.[814] Modern land use and similarity in terrain to the Jebel Zawiye to the east – which did sport a dense settlement system by the later Roman period – suggests that settlement may have continued at least another 10 to 15 kilometres to the south, before elevation and slope become too prohibitive for agricultural purposes. Finally, the direct surroundings of Antioch were not surveyed, due to modern habitation.[815]

In the lowlands, Braidwood's dating has been corrected in many cases by the AVRP survey. As the Syrian part along the 'Afrin river was not covered by the new surveys, the dating there remains suspect. For example, Braidwood suggests a Roman presence at Ain Dara, the site of a famous Iron Age temple and settlement, discovered 20 years after Braidwood's research. Further surveys and excavation undertaken there show that a new walled Hellenistic settlement existed at the site, but it was uninhabited throughout the Roman period.[816] If settlement in this area developed similarly to the plains, it is to be assumed that there was a significant Roman period population there as well.

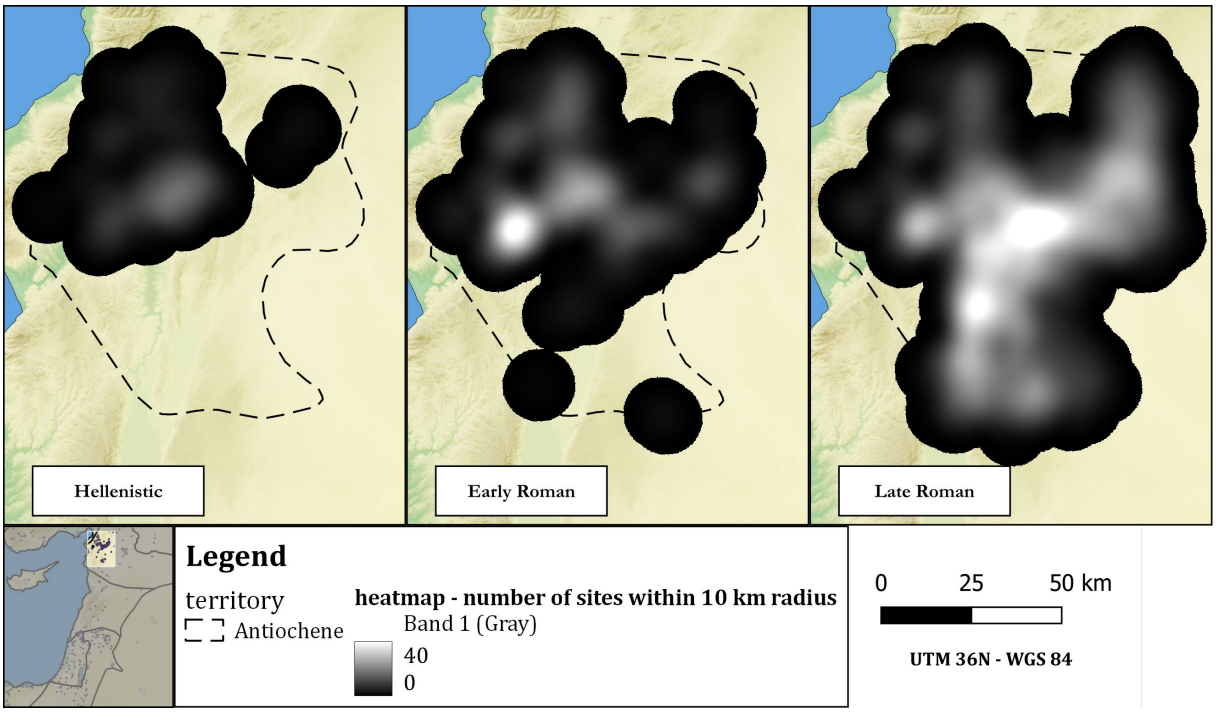

Figure 56 Heatmaps of secondary settlements in the Antiochene

[814] Casana, 'Geoarchaeology and Geomorphology: Soils, Sediments, and Societies'; Tony J. Wilkinson, Jason Ur, and Jesse J. Casana, '14. From Nucleation to Dispersal: Trends in Settlement Pattern in the Northern Fertile Crescent', in *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, 2004, 200.
[815] Casana and Wilkinson, 'Settlement and Landscapes in the Amuq Region', 41.
[816] Elisabeth C. Stone, *The Iron Age Settlement at 'Ain Dara, Syria: Survey and Soundings*, BAR International Series (Oxford: Hedges, 1999).

4.2.1 Coverage of towns and larger villages

Figure 56 show the density heatmaps of settlements within a 10 km radius for the Hellenistic, Roman and Late Roman periods (as defined by the AVRP, 300 to 100 B.C.E. for Hellenistic, 100 B.C.E. to 330 C.E. for Roman, and 330 to 600 C.E. for Late Roman). For Tchalenko's data, any place with indications the existence of temples or habitation before the fourth century has been added to the early Roman period, either from a mention in Tchalenko's own study, or that of Georges Tate. Note, a small cluster around Brad of Roman period sites from the Limestone Massif surveys fall within the Apamene and therefore do not show in the following maps. It clearly shows the expansion out of the plains into the surrounding highlands. It also shows a shift from the densest cluster of sites first towards the highlands south of the valley, and then east into the Jebel Barisha.

Considering however the sizes of these sites, one clearly sees that larger sites of several hectares are mostly clustered in the valley, around the site density hotspots of the Hellenistic period, in addition to several larger sites in the northern Jebels, especially Barisha and Sim`an. The Jebel al-Aqra sites are small, and the dense cluster may also be the result of improved site survival outside the valleys. Of the limestone massif sites, Tate's indexation of the actual number of rooms in per settlement associated to the Roman period shows that in the northern chains only Kafr Nābo and Šeiḫ Sleimān were significantly larger than the surrounding sites, with 57 and 64 identified rooms respectively.[817] The site of Telanissos for instance, while suggested by Tchalenko to have been settled somewhere between the first and fourth centuries, only grew to prominence with the foundation of the sanctuary for Simeon the Stylite.[818] Its size of 9 hectares, derived from Tchalenko's maps and satellite imagery, thus only indicates the largest extent of the village in later centuries. The same can be said of the other sites, and in fact the AVRP sites also lack period-specific site indications. Still, as Tate indicates, the earliest datable house in the areas he studied was from 204 C.E. However, he also counted almost as many datable inscriptions and tombs from the period of 140 to 250 C.E., as there were from 330 to 530 C.E. He expects that despite the disappearance of earlier houses, there must have been a significant number in that period, which in his tables, he spreads equally over the jebels.[819] We should

[817] Tate, *Les campagnes de la Syrie du Nord du IIe au VIIe siècle*, fig. 282.
[818] Tchalenko, *Villages antiques de la Syrie du Nord*, 1953, 1:208.
[819] Tate, *Les campagnes de la Syrie du Nord du IIe au VIIe siècle*, 173–81. Note however the serious issues indicated by Andrea Zerbini concerning Tate's dating of buildings, suggesting considerable higher early occupation, as well as stronger continuous growth over the centuries. Andrea Zerbini, 'Society and Economy in Marginal Zones: A Study of the Levantine Agricultural Economy (1st-8th c. AD)' (Royal Holloway, University of London, 2013), 98–100, https://pure.royalholloway.ac.uk/portal/en/publications/society-and-economy-in-marginal-zones-a-study-of-the-levantine-agricultural-economy-1st8th-c-ad(04f13f83-92b4-4bf7-b605-1736adeb6824).html.

certainly expect more sites to have had early occupation than is evident from the available data.

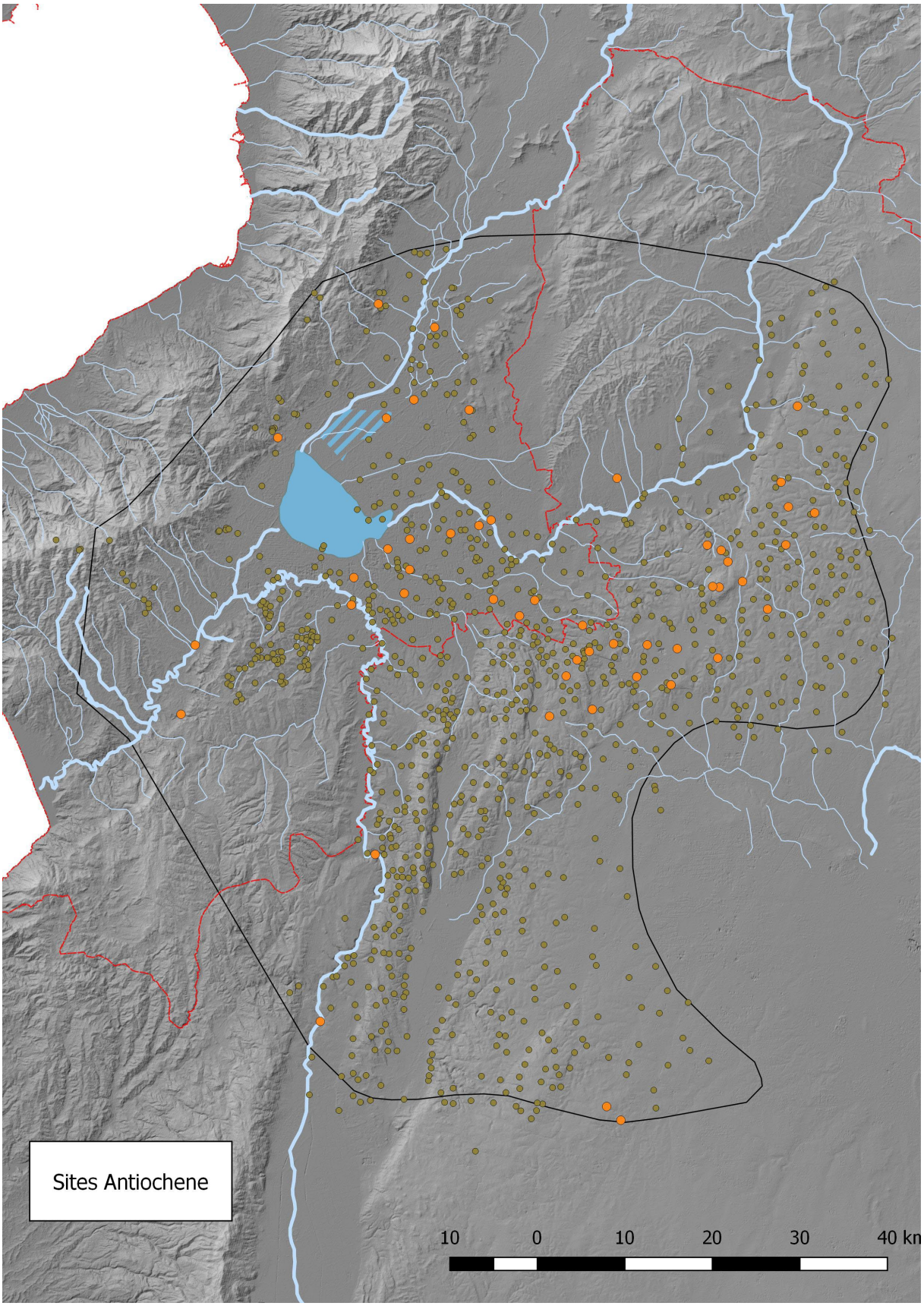

Figure 57 Survey sites in the Antiochene (in orange: larger settlements with Roman period habitation)

It is in any case clear that the majority of the larger sites in the region had a Roman period presence, suggesting that to a limited degree an agglomeration effect was present here, with a slight preference to settle at an existing settlement rather than in a new foundation. According to Andrea Zerbini, initially villages developed in clusters around sanctuary sites.[820] The vast number of dispersed, small settlements of course shows that this was only true to a limited degree.

With these reservations in mind, it is possible to discern something of a settlement hierarchy in the Antiochene countryside, even if accepting that for some parts this did not fully crystalize until the fourth century. In the valley, especially the small towns of Gindaros, Meleagrum and Gephyra stand out, at 15 hectares for the first two, and 8 for the last, and in the highlands Brad is among the largest villages with habitation throughout the Principate. These larger towns seem to be spread out rather evenly, with moderate villages of 4 to 8 hectares between them. To the south, along the Orontes towards Apamea, also lie two larger villages: Derkoush (possibly Platanos), and Jisr ash Shughur, which may be Seleucia ad Belum.

Among the larger settlements in the Antiochene one town stands out particularly. At 7,5 km distance south of Antioch, there was the town of Daphne, which in fact gave Antioch the name used by several authors: Antioch-at-Daphne (Strabo 15.1.73; Pliny *Nat. hist.* 5.18). Libanius defines Daphne as a suburb of the city, using the term προάστειον, but towards the end of a passage giving praise to Daphne's temples, aqueducts, gardens, baths and beautiful houses, he writes "Indeed it possesses each of these things in such a number that the fact that it is spoken of merely in the class of a suburb is to the shame of a city which, if it wished to dispute with other cities, has so many things by which it may win".[821] From Julian's Misopogon it can be gleaned that Daphne and its temples used to play an important role in the religious life of the city, with an annual festival that would, at least according to Julian's expectations, have seen citizens

[820] Zerbini, 'Society and Economy in Marginal Zones: A Study of the Levantine Agricultural Economy (1st-8th c. AD)', 102 ff.
[821] Libanius, *Or.* 11.239.

visiting from Antioch.[822] It gives a sense of how the secondary agglomerations in the Antiochene were viewed from the city.

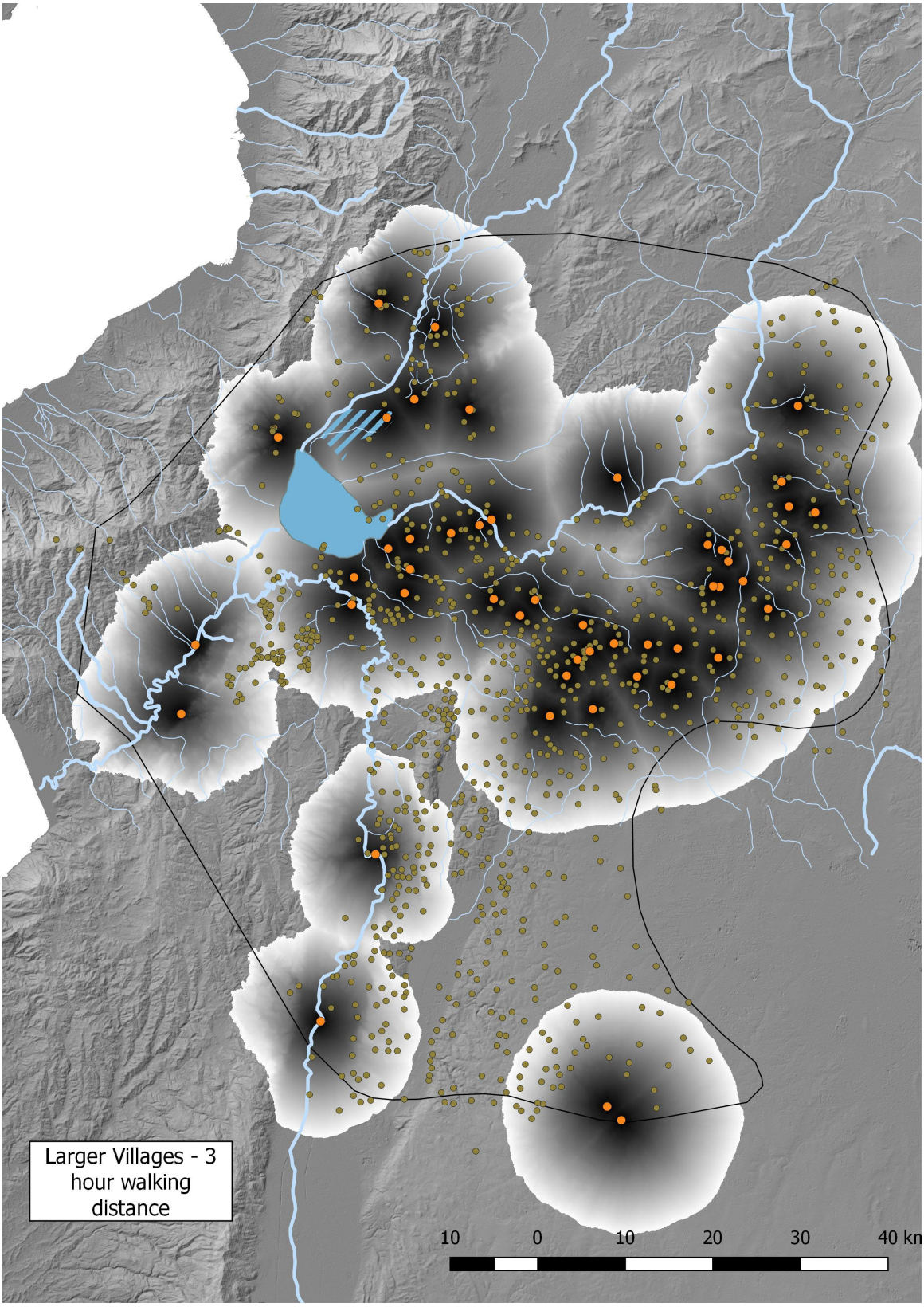

Figure 58 Walking distance from larger villages (up to 3 hours distance)

Figure 58 shows the walking time (in seconds) from the larger villages (and Antioch itself). This is calculated using Tobler's hiking function. See for an explanation paragraph 3.2.1.2. When limited at 3 hours distance, the majority of the territory seems to be covered. In other words, if we take 3 hours as the maximum distance from any place towards towns performing a market function, then these larger villages and towns could have provided such services for the countryside. The idea, as summarised in for instance in Bintliff's 'Going to the market in Antiquity', behind a 3 hour radius is that this would allow farmers to sell their produce in a town close enough to go there and return in a single day, avoiding too much time taken away from labour and additional costs of overnight stay.[823] Only the north of the Jebel Zawiye, around modern Idlib, lacks coverage. This could possibly have been covered by the village of Seremis – modern Sarmīn – which is known from an inscription in Rome from between the second and fourth century, and at least in the 6th century belonged to the territory of Antioch.[824] Secondly, potentially a larger village may also have existed in the Rūğ valley, which like the Amuq valley, also contained a lake until it was drained in modern times. A potential larger village might have been located at Tell el-Kerkh, the largest tell site in the Rūğ valley. Jacques-Claude Courtois, who studied the tells in this valley mentions that it contained "nombreaux tessons relevant des périodes classiques et postérieures."[825] Tell Daoud is an alternative, but unfortunately Courtois' interest was firmly focused on earlier periods, so any indication of pottery beyond the Iron Age was lumped together in a similar fashion.[826]

Even though they cover most of the territory, they are not quite spread equally over the area, but rather form four clusters with multiple larger villages together: a northern and southern cluster in the Amuq valley, a chain of villages in the northern jebels, and a cluster in the southern Jebel Zawiye, mostly falling within the Apamene. The southern and northern clusters in the valley might be more connected, for instance if one of the sites that were impossible to survey in the central valley had turned out to be a larger one as well. That doesn't take away the fact that there are clearly more large villages closer together than in the north. In both cases the terrain is similarly cut through by multiple watercourses, the Kara Su and the Yaghrā in the north, and

[823] Bintliff, 'Going to Market in Antiquity', 215–18.
[824] Todt and Vest, *Syria (Syria Prote, Syria Deuteria, Syria Euphratēsia)*, 1723–25; Idlib itself could possibly have been a classical site itself, but beyond perhaps a 6th century convent, little can be said about the place for earlier periods. See Tchalenko, *Villages antiques de la Syrie du Nord*, 1953, 1:97.
[825] Jacques-Claude Courtois, 'Prospection archéologique dans la moyenne vallée de l'Oronte (El-Ghab et Er Roudj. Syrie du Nord-Ouest)', *Syria* 50, no. 1 (1973): 90, https://doi.org/10.3406/syria.1973.6431.
[826] Courtois, 94.

multiple branches of the Afrin in the south. Especially in the south, there is evidence of additional canals being dug from the early Roman period onwards.[827]

4.2.2 Coverage of small villages and farms

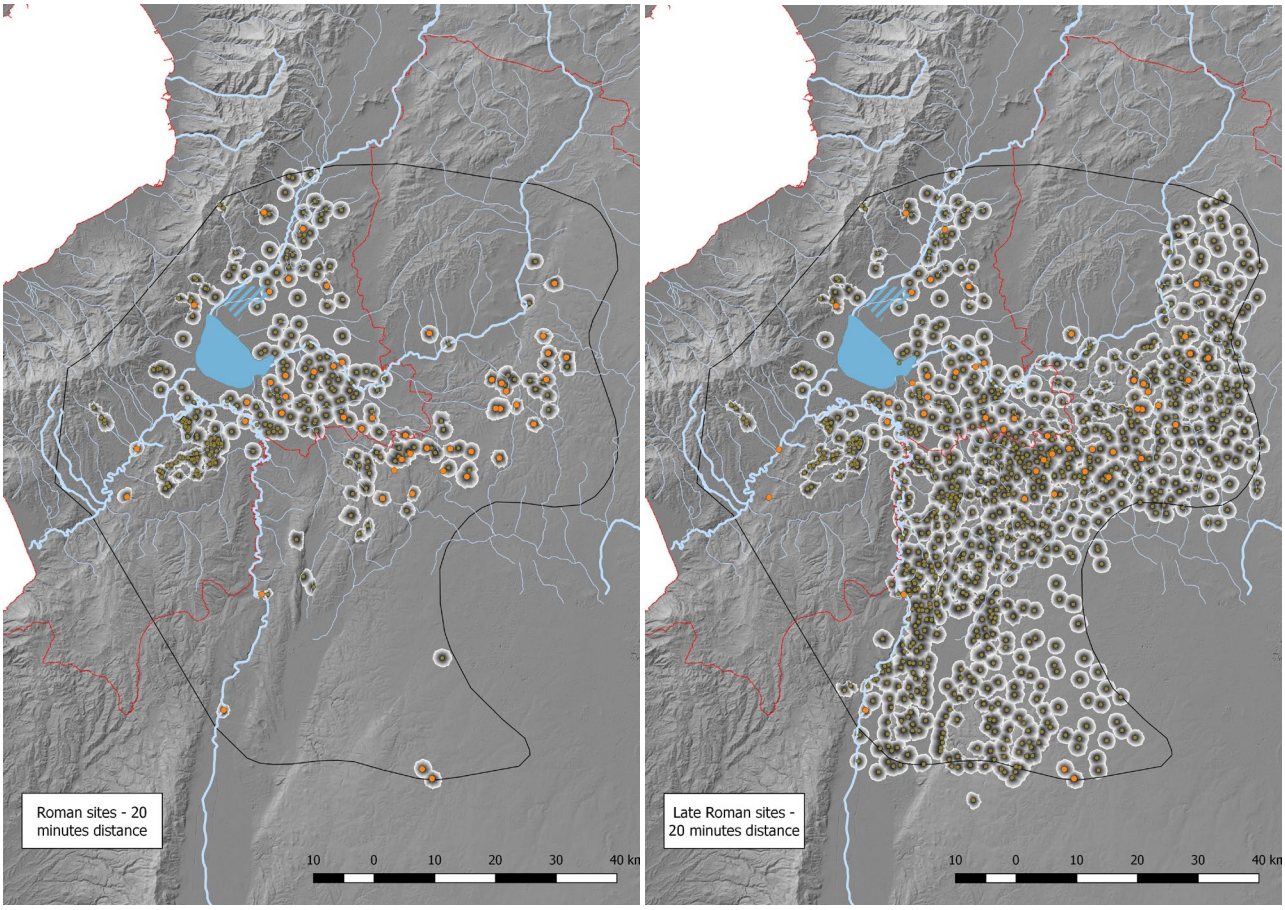

Figure 59 20 minute walking distance around Roman and Late Roman sites

Figure 59 shows walking distances around all Roman and Late Roman sites. Here it can be seen that for the Late Roman period, only below 20 minutes distance do larger gaps start to appear in the coverage of the region. Nonetheless, even at 15 minutes around there is still a reasonable coverage of the territory. Within 20 minutes distance 404,004 hectares fall within reach, which drops to 270,694 hectares for 15 minutes around all sites (so from roughly two-thirds to half of the cultivable land of the Antiochene; which is considerable if you consider this includes areas that were not surveyed). Gaps are most pronounced in the central eastern and northern Amuq valley, where it would not be unreasonable to expect more hard-to-detect single farms and non-mounded sites – and naturally there is no coverage in the unsurveyed valleys between the jebels. In other words, if we expect the smaller sites to have been of the order of magnitude of single farms and hamlets, and expect their 'territories' to have been limited to areas within at most 15

[827] Meriam et al., 'Soil Erosion in Relation to Land-Use Changes in the Sediments of Amik Lake near Antioch Antique City during the Last 4 Kyr'.

minutes reach, and furthermore expect full coverage of the landscape, then there clearly are numerous places missing, especially in the gaps indicated. But even so, it is clear that most of the arable territory could be farmed from a village or farm 20 minutes away, and nearly all of it within 30 minutes from a farm.[828]

If we take an upper limit of one hour walking distance from all sites (irrespective of period), the resulting area could be subdivided on the basis of Thiessen polygons (polygons drawn on the basis of all halfway points of each site and its nearest neighbours) to estimate the area available for cultivation per site. The mean area around each site of the full set of survey sites within the Antiochene would be 593.4 hectares. Consider however that even within this one hour limit, the polygons on the outer edge and bordering the lake are significantly larger than the whole (at a mean value of 1705.3 hectares and making up 89% of the polygons over 1400 hectares). Without the outer areas, the mean area surrounding each site is 410.2 ha. In reality, this would still be on the high side, considering that the recovery rate of lowland sites is limited. Even so, Tate assigned similar sized areas to the villages he studied.[829]

As was to be expected from the heatmaps as well, for the earlier Roman centuries overall coverage drops to a number of disconnected chains of sites and a few solitary isolated villages. Here coverage of the landscape is only contiguous at 1 hour travel distances, and that is disregarding the sites in the southern Jebel Zawiye. At 15 minutes, only 70,152 hectares lie within reach of a site, and at 20 minutes 106,329 hectares. However, the gaps in the Amuq valley are smaller, as a higher number of small sites dotted the landscape. This suggests that while expansion took place during the later Roman period further into the marginal lands of the jebels, gaps were filled in between older settlements and were brought under cultivation, whereas areas closer to the capital were consolidated, with smaller farms disappearing in favour of the growth of villages such as Imma and Gindaros. De Giorgi highlights this as well, indicating that by the fourth century only 47% of the AVRP sites were in use (versus 72% between the first and third centuries). His suggestions are that in the first place, partly as a result of unsustainable agriculture in the highlands, increased upland erosion and runoff caused the growth of the lake

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[828] John Bintliff, *Testing the Hinterland: The Work of the Boeotia Survey (1989-1991) in the Southern Approaches to the City of Thespiai*, McDonald Institute Monographs. 226579549 (Cambridge: McDonald Institute for Archaeological Research, University of Cambridge, 2007).

[829] Tate, *Les campagnes de la Syrie du Nord du IIe au VIIe siècle*, 315; Cf. Dimitri Van Limbergen, 'Figuring out the Balance between Intra-Regional Consumption and Extra-Regional Export of Wine and Olive Oil in Late Antique Northern Syria. In Olive Oil and Wine Production in Eastern Mediterranean in Antiquity (2015), 169-189', in *Olive Oil and Wine Production in Eastern Mediterranean during Antiquity*, ed. Adnan Diler, Kaan Senol, and Ümit Aydinoglu (Izmir, 2015), 178–80, https://www.academia.edu/12218423/Figuring_out_the_balance_between_intra_regional_consumption_and_extra_regional_export_of_wine_and_olive_oil_in_late_antique_northern_Syria_In_Olive_Oil_and_Wine_Production_in_Eastern_Mediterranean_in_Antiquity_2015_169_189.

and wetlands around the Kara Su and Afrin, and coupled with severe flooding of these rivers as well as the Orontes caused diminishing returns in the plain. As such, moving into the highlands would be one of the few viable alternatives. Secondly, that the larger centres started to behave rather more as competitive centres towards Antioch, instead of the more dependent role they would have played throughout the Principate. Thirdly, there may have been an increase in private ownership of villages and larger estates in the hands of wealthy urban elites, pushing away smaller independent farmers. Nonetheless, De Giorgi states that this third issue was likely to have been less prominent than suggested by earlier scholars such as Weulersse and Liebeschuetz – who still thought the landscape of Antioch to have been almost entirely devoid of settlement.[830]

4.2.3 Erosion, soil degradation and longer term settlement patterns

When it comes to environmental effects, it should be noted however, that while De Giorgi is likely correct about the erosive effects of upland agriculture, the period when this took place is less certain.[831] Upland deforestation seems to have already taken place since the Bronze Age, but Casana states that at least for the Jebel al Aqra any activity there did not have a significant impact on erosion of the hillslopes.[832] In comparison, Bronze Age deforestation and overgrazing in southern Jordan (as well as the wider Near East) may serve as an example of where irreversible impact on the environment did already take place that early, with desertification following on vulnerable steppe areas being stripped of land-cover.[833]

Even with increased settlement from the later Hellenistic period onwards in the Syrian Jebels, increased erosion did not start to take place until after the mid second century, and peaked only after the fourth century. Several alluvial fans around the Amuq plains likely formed in the Late- or post-Roman period, as these cover Late Roman soils, up to the 6th century.[834] Casana's idea is that while increased agriculture in the highlands created the preconditions for soil degradation, this only happened in several short periods of severe erosion, as the result of extreme rainfall events. As such, it may serve better as an explanation for the severe decrease in settlement around 700 C.E., with the Late Roman settlement expansion as a cause rather than a result of

[830] Andrea U De Giorgi, *Ancient Antioch: From the Seleucid Era to the Islamic Conquest* (Cambridge: Cambridge University Press, 2016), 89–90.
[831] Gerritsen et al., 'Settlement and Landscape Transformations in the Amuq Valley, Hatay', 263.
[832] Casana, 'Geoarchaeology and Geomorphology: Soils, Sediments, and Societies', 435, 439.
[833] Naomi Frances Miller, 'The Macrobotanical Evidence for Vegetation in the Near East, c. 18 000/16 000 B.C to 4 000 B.C.', *Paléorient* 23, no. 2 (1997): 197–207, https://doi.org/10.3406/paleo.1997.4661; Patricia Fall, Steven Falconer, and Lee Lines, 'Agricultural Intensification and the Secondary Products Revolution Along the Jordan Rift', *Human Ecology* 30 (1 December 2002): 445–82, https://doi.org/10.1023/A:1021193922860.
[834] Casana, 'From Alalakh to Antioch', 73–77.

environmental change.[835] In his section on the geomorphology of the valley, Tony Wilkinson also indicates that the large areas of marshland stretching northeast from the lake mainly formed after the Late Roman period, from the discharge of water of the northern Afrin canal.[836] Furthermore, a recent core taken from the former lake also suggests that the greatest change in the Orontes watershed took place around the change into the Islamic period, which the authors link to the removal of soil in the jebels.[837]

It is of course quite possible that De Giorgi is right in stating that this process was already underway and affecting the settlement pattern throughout the Later Roman period. On the other hand, some of the contraction in smaller settlements must have already taken place during the Roman period itself, as a number of these sites show no Late Roman evidence at all. It also doesn't take away the fact that there already was some growth of the lake and the marshland even before the Late Roman period, especially considering the lake had only formed between the 7th and 4th centuries B.C.E., and some sites certainly did disappear as a result.[838] A good example comes from AS 187, Hisarlik Tepesi, which seems to have been abandoned after the second century and may have been entirely submerged.[839] Other, earlier sites (AS 74, 180 and 181) around the south-eastern shore of the lake suffered the same fate already by the first century B.C.E..[840]

4.2.4 Wider regional context

From other studies we can gain some insight into the development of non-urban settlements as well. Especially Dan Lawrence's thesis on early urbanism in the Levant and his subsequent publications, give a valuable overview of long term settlement dynamics based on a number of regional surveys. While his main focus lies on the fifth to third millennium B.C.E., he also shows developments in settlement density, built area and new foundations into the Classical era. He highlights a very strong overall settlement expansion from the Hellenistic period in western Syria (within the confines of the AVRP and Homs surveys), especially compared to the far more moderate fluctuations in the Jazira and Middle Euphrates regions. Focussing down to sites over and under 5 hectares, he shows that there was relative stability in small site density. Up to the Classical expansion in the west, small site densities were also quite similar in the three regions.

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[835] Casana, 'Geoarchaeology and Geomorphology: Soils, Sediments, and Societies', 436–349.
[836] K. Aslıhan Yener et al., 'The Amuq Valley Regional Project, 1995-1998', *American Journal of Archaeology* 104, no. 2 (1 April 2000): 177, https://doi.org/10.2307/507449.
[837] Meriam et al., 'Soil Erosion in Relation to Land-Use Changes in the Sediments of Amik Lake near Antioch Antique City during the Last 4 Kyr'.
[838] Casana, 'From Alalakh to Antioch', 67.
[839] Gerritsen et al., 'Settlement and Landscape Transformations in the Amuq Valley, Hatay', 269 note 27.
[840] Gerritsen et al., 251.

The greatest changes took place in the density of large sites: the Jazira dominated in the third and second millennia, in stark contrast to its low density in the Classical period.[841]

Based primarily on 9 surveys connected to the Fertile Crescent Project, the actual area covered by his PhD-study is inevitably limited, even though he does compare where he can with neighbouring studies. Where even between the FCP surveys themselves differences in methodology already pose difficulties for comparison, this is even more true for comparisons with other surveys. As such, it is not possible to create a quantitative analysis of all surveyed places in the northern Levant.[842] For specifically the Roman period, surveyed areas that offer detailed information on the settlement patterns of such smaller sites are even more constrained.

[841] Dan Lawrence, 'Early Urbanism in the Northern Fertile Crescent: A Comparison of Regional Settlement Trajectories and Millennial Landscape Change' (Doctoral, Durham University, 2012), 302–5, http://etheses.dur.ac.uk/5921/.
[842] Lawrence, 162, 243, 276, 280.

The CRANE (Computational Research on the Ancient Near East) dataset from the University of

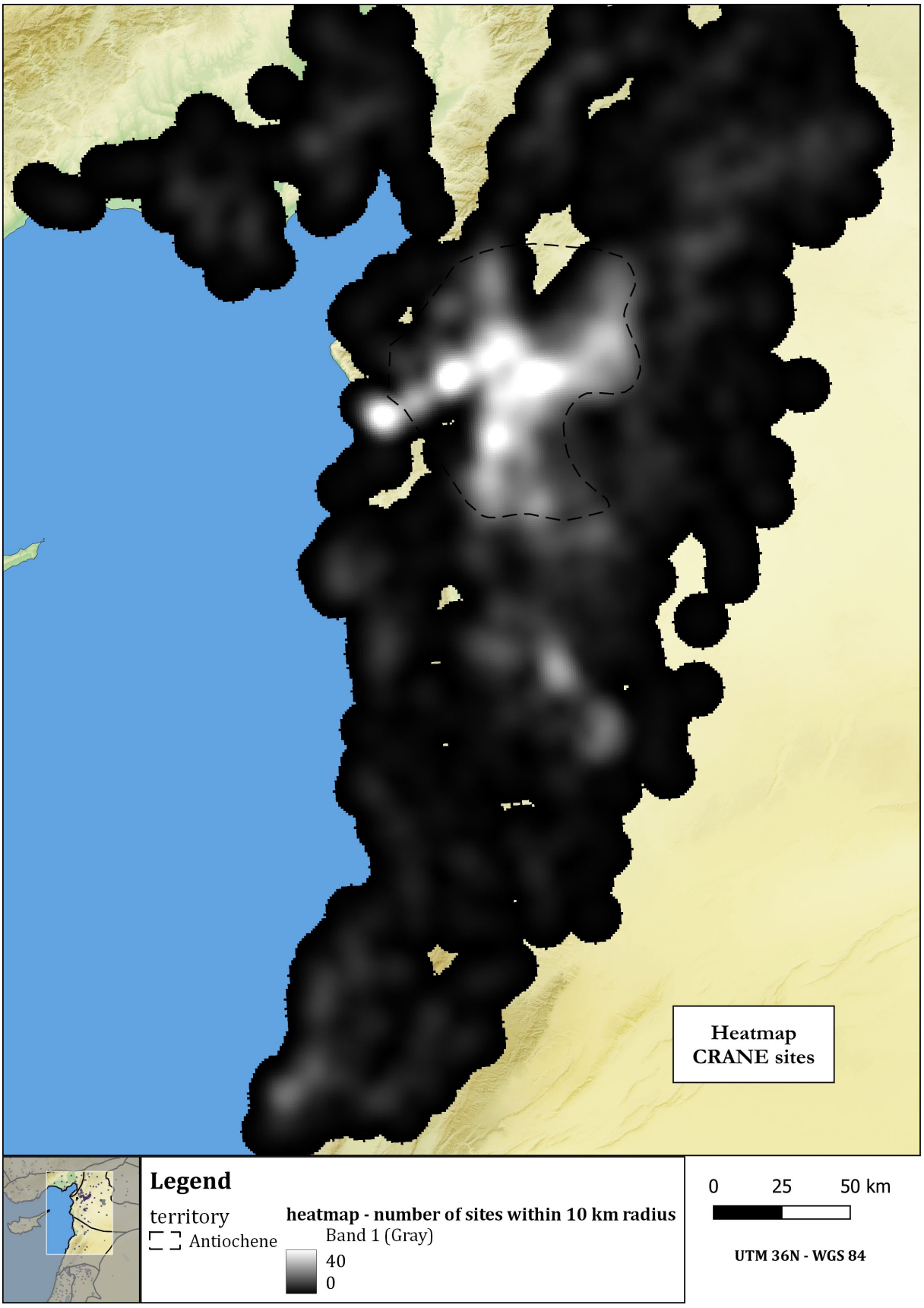

Figure 60 Heatmap of Antiochene surveys combined with CRANE dataset

Toronto contains settlement data for surveys undertaken throughout the regions adjoining the Antiochene as well.[843] A limited extract of the dataset is open to the public, containing site names, ID's and the source survey the data originated from. Again, many of these surveys offer only limited data on the Roman period. Figure 60 shows a heatmap based on all settlements in the study area from the AVRP and Tchalenko surveys, without regard for the date of their existence, combined with the sections of the CRANE dataset falling outside the study-area. It indicates the number of settlements within a 10 kilometre radius of each cell. The heatmap clearly shows that the Antiochene region stands out with overall densities in a 10 km radius of well over 25 settlements (0.32 sites per square kilometre) – in fact peaking at twice that number in the Jebel Barisha, around Bamuqqa, and in the foothills of the Jebel al Aqra. This means that the data from this region cannot be considered as indicative for the wider northern Levant without further consideration. It is quite possible that it is merely a reflection of survey intensity, and that similar site densities should be expected throughout the wider region – of course taking environmental conditions into account. The small dense cluster in the region around Larissa could be seen as an argument for this, as it is the only area that offers a similar cluster of 0.3 sites per square kilometre. Here a recent intensive survey was undertaken by Karin Bartl and Michel al-Maqdissi, showing a research methodology far closer to that of the AVRP than for instance Matthers' extensive surveys around tell Rifa'at. Here only visible tell sites were studied in the vicinity of the river Qoueik, albeit 88 of them.[844] Of course, the same is true for Tchalenko's survey, with nonetheless vastly different densities.

As noted, this takes all sites into account, without regard for dating. Even within the Antiochene, the ratio of sites showing Roman period material differs a lot: while for the AVRP data 205 of the 287 sites were occupied in the Roman period,[845] the vast majority of the sites in the Limestone Massif were only inhabited in later centuries. As such, one cannot expect similar densities to that of the Amuq valley in the wider region. To give another example, in the Qoueik survey, of the 88

[843] Timothy P. Harrison, 'Computational Research on the Ancient Near East (CRANE): Large-Scale Data Integration and Analysis in Near Eastern Archaeology', *Levant* 52, no. 1–2 (3 May 2020): 1–4, https://doi.org/10.1080/00758914.2018.1492784; Stephen Batiuk and Lynn Welton, 'The Computational Research on the Ancient near East (CRANE) Project: Archaeological Data Integration, Simulation and Data Mining', accessed 12 July 2022, https://www.academia.edu/35266878/The_Computational_Research_on_the_Ancient_near_East_CRANE_Project_Archaeological_Data_Integration_Simulation_and_Data_Mining; 'The CRANE Project', accessed 12 July 2022, https://crane.utoronto.ca/.

[844] John Matthers, 'Tell Rifa'at 1977: Preliminary Report of an Archaeological Survey', *Iraq* 40, no. 2 (1978): 119–62, https://doi.org/10.2307/4200095; John Matthers and Dominique P. M. Collon, *The River Qoueiq, Northern Syria, and Its Catchment: Studies Arising from the Tell Rifa'at Survey 1977-1979*, BAR International Series (Oxford: BAR, 1981), 11–21; Matthers and Collon, fig. 201; Or more precisely, 88 sites, of which only 68 turned out to be tells. See Paolo Matthiae and Nicolò Marchetti, *Ebla and Its Landscape: Early State Formation in the Ancient Near East* (Walnut Creek, Calif.: Left Coast, 2013), 251–54.

[845] Gerritsen et al., 'Settlement and Landscape Transformations in the Amuq Valley, Hatay', 252.

sites, only 20 showed evidence of Late Roman fine ware, 9 of which also contained early Roman material.[846]

4.2.5 Potential cereal productivity of territory

Settlement name	Settlement size	regional population to be fed	1 person/ha surplus	FAO surplus	FAO halved surplus
Antioch	500.0	375,000	-347,823	-314,286	-344,643
Eš Šeiḫ Sleimān	7.5	5,625	32,766	126,841	60,608
Imma	3.0	2,250	7,451	29,985	13,867
Khirbet al-Tahoun	4.5	3,375	11,376	25,203	10,914
Gephyra	8.0	6,000	30,262	56,950	25,475
Meleagrum	15.0	11,250	19,120	55,686	22,218
Ad Dana		-	22,267	75,544	37,397
Mogiza	3.0	2,250	28,933	135,231	66,491
Esen Tepe	9.8	7,350	12,862	36,712	14,681
Daphne		-	28,961	80,718	39,984
Tell Sultan	9.0	6,750	6,395	21,328	7,289
Pagrae	4.5	3,375	26,759	55,977	26,301
Derkoush	7.0	5,250	35,143	104,618	49,684
Gindaros	15.0	11,250	29,713	110,001	49,376
AS254	7.5	5,625	14,671	29,974	12,175
Jebel Sheikh Barakat	3.3	2,475	12,826	38,821	18,173
Bāqirḥā	2.4	1,800	9,502	32,175	15,187
Ruweiha *	8	6,000	21,075	76,709	35,354
	597.5	**455,625**	**2,259**	**778,187**	**160,531**

Table 16 Antiochene secondary settlement surplus production (* Ruweiha production has been halved, as half its calculated territory would fall in the Apamene)

By taking the potential surplus of the 18 market zones that would fall within the Antiochene (Table 16), following the surplus calculations used in

Applying carrying capacity (page 213 and onwards, thus including consumption by both urban and rural population), it is immediately clear that the Antiochene comes far closer to a self-sustaining productive unit, with a small surplus in the 1 person per hectare scenario, and considerable surpluses when considering the FAO figures, which reflect the fertility and rainfall levels of the Antiochene lowlands. Even if we halve the FAO figures – as it is very unlikely that all available land would be used for cultivation.

Of course, part of the surplus would go to the populations of Ad Dana and Daphne, with especially the latter likely still having a considerable population. Furthermore, as shown above,

[846] Matthers and Collon, *The River Qoueiq, Northern Syria, and Its Catchment*, 439–40.

the actual area within 15 to 20 minute farming distance of sites with clear evidence for existence in the first to third century is considerably smaller. Additionally, in the jebels there's another 55,300 ha of rough terrain, and a further 146,500 in the Antiochene as a whole (albeit almost entirely in the unsurveyed areas).

On the other hand, a 20% urbanisation rate seems unlikely just for the market radius of Antioch itself. Having 82% of the population of the entire Antiochene living just within the direct market zone of Antioch itself, as the table above suggests, is perhaps unlikely. It would give too many hands to work far too little land. On the other hand, it does show that even with a far larger urban population than suggested in this chapter, and limited agricultural activity directly around the city, the wider territory as a whole could in fact support the city.

For the greater Antiochene a total population gravitating towards half a million is far more conceivable. As indicated in 4.1.1, we even set an upper limit of around 600,000. Even then, the FAO figures, whether halved or not, would allow for a population that size. And while we lack evidence, considering how the larger Late Antique villages of the Limestone Massifs grew around older settlements, we should also expect an earlier rural presence around Deir Mishmish in the north and especially Seremyn in the south of the Antiochene – where continued post-Roman habitation and agriculture resulted in a limited archaeological landscape. The additional villages would potentially fill in the gaps seen in Figure 58, therefore also increasing the 'land under cultivation' for the purpose of this calculation.

4.3 Conclusion

As seen above, in the case of Antioch we can get a closer look at probable population figures and the interplay between city and territory. Antioch did indeed have a considerable population for a city of its period, even when making a cautious estimate between 110,000 and 135,000 inhabitants. And the countryside around it would have been a thriving, densely populated region, even if we expect a lower figure than the (not so cautious) estimate of 600,000 people in total, minus the urban population of course. In comparison, we find that the population densities we consider for Antioch compare realistically to those of Ottoman-era cities in the region. The exceptionally high Ottoman urbanisation rates may both reflect a larger portion of agricultural workers living in cities, as well as under-registration of the rural population. But it certainly shows that a 20% urbanisation rate is not set in stone.

Furthermore, we know that the major part of the territory lay at considerable distance from the city, certainly more than the 3 hour market zone defined in 3.2.1.3. As stated in the introduction, one would expect some form of central places for a variety of services, at the very least for local markets, at shorter distances. Indeed, there were a number of larger villages and towns

throughout the territory of Antioch that could very well fit this role. Some are also known from various sources to have indeed performed urban-like functions, such as Daphne, Gephyra, Imma and Gindaros. Barring some gaps, we find that if we generate similar market zones around these settlements as we did around Antioch itself, most of the territory would be within easy reach of these secondary agglomerations.

Theoretically, the Antiochene hinterland would be able to sustain both the metropolis and a rural population as large as suggested above. Naturally, this comes with a great many caveats. A number of these were discussed in Chapter 3: in the first place, actual land use would be quite different from 100% cereal cultivation. Especially in the Massif Calcaire, we know that there was mixed agriculture, with wine cultivation, olive oil production and animal husbandry. While there is discussion on the main crop being cultivated, Dimitri van Limbergen makes a solid case for a strong focus on olive cultivation. Also taking a look at Andrea Zerbini's thesis on Levantine agricultural economy, his detailed study of Dehes shows how at least for the later Roman period, over half the available land of the village would have been dedicated to wine and oil cultivation, suggesting a vast overproduction compared to possible local consumption. Essentially, cultivation was strongly focussed on production for the market, rather than self-sustainability. He argues, in fact that this is a sensible approach to overcome poor harvests due to the highly variable rainfall in the uplands.[847]

So too would diets consist of more than just grain consumption, and other sources of food would be available as well (as for instance, fish from the lake of Antioch or brought upriver from the sea, meat, vegetables from the gardens around Antioch, etc.). As mentioned in 3.2.2, this does not necessarily mean that the land would fulfil less of the caloric demands of the population. Depending on local suitability for alternative crops or land use, carrying capacity could also be higher than when planting (and eating) wheat. Additionally, population pressure and (over)intensive land use could result in a number of ecological issues, as indicated in 4.2.3., causing diminishing returns over time. For the Antiochene, some of these effects would already have been noticeable in the first to third centuries, but would mostly start taking their toll in later periods.

In practice then, it is apparent that the Antiochene population could live off the produce of its territory, and probably did so for the bulk of its food. There is then no solid basis for the argument by Hopkins we mentioned in the introduction, that there was a structural *need* for

[847] Zerbini, 'Society and Economy in Marginal Zones: A Study of the Levantine Agricultural Economy (1st-8th c. AD)', 175–98; See also Limbergen, 'Figuring out the Balance between Intra-Regional Consumption and Extra-Regional Export of Wine and Olive Oil in Late Antique Northern Syria. In Olive Oil and Wine Production in Eastern Mediterranean in Antiquity (2015), 169-189', who instead rather suggests a focus on oil.

food imports and therefore, a need for large amounts of income through trade. Even so, we should still expect that at least some part of Antioch's food supply came from outside her proper territory through the market, either supplementing primary production or alleviating shortages when harvests failed. As also indicated in 3.2.4, a good number of Syrian exports throughout the empire could be sourced to Antioch. Of all settlements discussed, certainly Antioch would have been integrated enough into a wider market. Clearly it did produce goods for export, so that it might have been capable to structurally complement her food supply. It should nonetheless be stressed that there is no literary evidence for this, except for the incidental purchase of grain in crisis situations.

Chapter 5 General conclusions

The first two chapters of this thesis gave a reconstruction of the urban system found in the provinces of the Roman Levant. All regions show that the complex interplay between geography, path dependency and human agency created different results. Geography might very well determine the preferable spots for settlement. With necessary conditions fulfilled, i.e., access to water, ground suitable for construction and cultivable soil, chances are good that some type of settlement would emerge, even if little more than a small village. And with the rich history of the Levant, people had probably already been living at that spot for hundreds, if not thousands of years. Beyond the confines of the 'fertile crescent', in the steppe- and desert-like conditions towards the east and south, permanent settlement remained very limited indeed.

But geography alone does not create cities. For a variety of reasons people flock together at specific sites rather than others. Some of these reasons might be geographically determined, but still depend on the specific needs of people at a specific time. Defensibility could for instance be an important factor in more uncertain times, causing people to cluster on and around hilltops, or in the safety of already existing, well-fortified cities. Over time, preferences might shift towards more easily accessible sites. Access to specific sea routes, passes and rivers could be valuable, but with changing economic and political conditions, these routes might become obsolete again. Access to particular resources might be in demand in one era, but not in another. Even with such shifting preconditions, some of these settlements remained dominant settlements, for the simple reason that they had been so for a long time.

The city of Petra provides a good illustration: without the Nabatean success in caravan trade – and the power vacuum left by the disintegrating Hellenistic empires – would the city have grown to anything more than any other Nabatean sanctuary? A place of religious importance, with the occasional nomadic group visiting? In the centuries before Roman annexation Petra became the capital of the Nabatean kingdom; and as it came to fall under Roman control, it remained a vibrant and regionally important metropolis, even if by now sea-borne trade by way of Egypt eclipsed the value of any land route via Petra.

Overall, it is clear that in all regions, the development of the urban system continued along trajectories that had already been set in motion before Roman annexation, with incorporation into the empire at times acting as a catalyst. One major, well-known difference is visible between the former zones of control of the Seleucid and Ptolemaic empires. In the southern, formerly Ptolemaic provinces, a dense network is visible of mostly small cities, while in the northern, formerly Seleucid territory, large dominant urban centres controlled vast territories in comparison. As seen in Chapter 3, the total urban area of Coele Syria alone accounted for a third

of the total urban area in the entire study area, more than that of Syria Palaestina and Arabia combined. Yet Coele Syria contained less than half of the actual cities found in those two provinces. These basic facts highlight the contrast between a northern zone in which we find a handful of unusually large cities and a southern zone characterised by the existence of many small towns. It is generally argued that in the south, a more decentralised form of regional control based on village-level toparchies had been in place, contrasting with the more centralised approach of city 'foundations' by the Seleucids in the north. It should however also be acknowledged that for instance in the Jewish kingdom, Jerusalem, at its apex, certainly was an urban centre that could rival the Hellenistic cities in the north. However, with Roman control focused in Herod's new city of Caesarea Maritima, and certainly with the destruction of Jerusalem, the old subordinate toparchy centres slowly but surely increasingly took on urban aspects, and many attained urban status under Roman control.

In general, we find that most cities of the Roman Near East remained small to middling settlements, unless particular circumstances elevated them beyond their peers. For instance, we see such specific conditions among the old Phoenician cities, all potential commercial hubs in their own right, and with urban trajectories going back further than most Levantine cities. Along their historical trajectories, changing political and economic situations affected their success. So where at one point Arados may have been a rich and (semi-) independent polity, settlements like Tyre and Berytus benefited far more from their integration into the Roman Empire. Receiving grants of colonial status and land helped them grow beyond most of the other coastal cities – even if still remaining moderately-sized towns, both likely under 70 hectares. However, developments could also go the other way. Arados itself had backed the wrong sides during the Roman civil wars and lost territory as a result. And on the other side of the mountains, in the territory of Berytus, we see a rare development in the Roman Levant, or at least the northern provinces: the genesis of a new city, Heliopolis. Having become a major cult site during the Roman period, under the Severans Heliopolis was granted urban status, and part of the territory of Berytus with it. This was a result of Berytus backing the wrong candidate for the imperial purples – but also a recognition of the demographic growth that followed the opportunities that could be found at a major religious centre. Indeed, by then Heliopolis was larger than Berytus itself.

The impact of particular events and crises sometimes was sudden and extreme, as in the case of Jerusalem, or a city like Dura Europos, which never recovered from the sack by Shapur in the mid-third century. But mostly, settlements were resilient, change was slow and longer-term paths were more relevant, also after the Roman conquest. For instance, relatively recently annexed Mesopotamian cities like Edessa and Nisibis – the dominant centres of their own

respective (client) kingdoms – remained large, important, and locally uncontested cities within a Roman context.

On the whole, as far as the evidence allows, we can conclude that in most regions the first to third centuries show a general increase in settlement size and number compared to the Hellenistic period. This was certainly the case in the Tetrapolis, where the archaeological evidence from Antioch and its territory is particularly impressive. While Antioch was of course already an important capital of the Seleucid kingdom, it is clear that under Rome it witnessed a period of unprecedented growth. Beyond the cities, in most regions there are examples of an increased density of rural settlements and an expansion of settlement into marginal areas.

The size distributions described in chapters 1, 2 and 3 take a wider regional perspective. To begin with, the rank-size graphs for the study regions do not adhere to Zipf's law, but broken down into their constituent provinces or proximity clusters, we find three areas where they do, to a limited degree. As argued in chapter 1.3.3, the occurrence of distributions that follow Zipf's law has been explained in various ways, one of which suggests the economic integration of the system under study. A major difference in all regions from a 'perfect' Zipf distribution is a strong underrepresentation of smaller settlements, causing a strong tapering off of the lower tail of the distributions. While this is to be expected, it is an important reminder that when dealing with ancient settlements, it is mostly the larger cities for which locations and sizes are known, while smaller towns have far less chances of being found or studied.

Although a Zipfian distribution need not imply perfect economic integration, the existence of settlement hierarchies that do not conform to Zipf's law may be read as pointing to a low level of economic integration of the urban system. In particular, the presence of a strong convexity in all regional distributions seems to reflect the existence of many urban settlements of moderate size, that could survive on local food production. To investigate this further, Chapter 3 studied the potential levels of cereal cultivation in market zones drawn around cities and secondary settlements. On the one hand, while market zones around official cities only cover a limited part of the provinces, taking secondary settlements into account gave a significant increase in coverage. However, as became clear from the size distributions, this exercise also highlights the remaining gaps where we lack knowledge about places performing central functions. Despite these uncertainties it is clear that the market zones of most settlements of the Roman Levant were capable of generating enough food for local consumption. From a functional point of view most of these places were little more than central places strongly embedded in their agricultural territories. At least on this front, incorporation into the Roman Empire did not bring major modifications to settlement dynamics.

Interestingly, there are reasons to think that a relatively low level of economic integration within the urban system as a whole went hand in hand with a considerable level of market involvement within urban territories. Thus the spread of non-urban central places strongly suggests the importance of the availability of market centres for rural communities. And we can even see the expansion of rural settlement and the forming of non-urban central places into remoter areas such as the Limestone Massifs or Upper Galilee.

In Chapter 3 an attempt was made to test these general findings by extrapolating settlement sizes based on local agricultural possibilities. The resultant distributions mostly reinforce the picture already emerging from the distributions based on actual sizes. Where we found a closer match to the Zipf distributions for the upper tail – in Coele Syria, and in the north and south of Arabia – the filling in of the lower tails brings the whole distribution more in line with these theoretical models. In those regions whose largest cities and towns were distributed according to a 'concave' pattern, the difference with a Zipfian distribution becomes even more pronounced. In theory it would be possible to argue that Coele Syria had a well-integrated economy, since it was focused around Antioch as the political, military and economic heart of the Roman East. However, if this was the case, it becomes difficult to explain why the rank-size graph for the cities of coastal Palestine is completely out of line with a Zipfian distribution. If we also take into account the degree to which the figures in 3.2.2.4 reflect potential food production, it becomes probable that the Rank Size distributions for the Roman Levant primarily reflect the differences in the quality and size of urban territories.

That leaves us with a limited number of cities that very clearly did break through their theoretical ceiling of local food production within their direct market zones. We have taken detailed looks at Petra and Palmyra, both well-known for their wealth from trade activities, but we found that agricultural techniques adapted to their environment and larger catchment areas allowed for more local food production than initially expected. Only in a few cases can we be certain that a city was structurally dependent on food imports: hemmed in between the mountains and the territory of Antioch, there was no way that Seleucia Pieria could have produced enough food in its own territory compared to the size of the city. But this was clearly an exceptional settlement, not just as a port city but also as the headquarters of the Syrian fleet.

In terms of size the city of Antioch towered above all other cities of the Roman Levant. In Chapter 4, a detailed investigation into the archaeological evidence showed that this city may well have counted between 110,000 and 135,000 inhabitants. Interestingly, even this unusually large city seems to have been sustained largely by local production. Antioch's administrative territory enclosed 653,500 hectares, 605,300 of which were cultivable, clearly a far larger area than just its theoretical market zone. In Chapter 4 it has been argued that in all likelihood, this

area was quite sufficient to support a regional population of well over 450,000 people, up to perhaps 600,000, even if the latter figure was hardly sustainable over longer periods of time. Unsustainable practices certainly took place, leading to soil erosion in the highlands over the following centuries. However, as the various settlement surveys in the Antiochene indicate, during the second and third centuries we should not yet expect the territory to have been populated to its fullest extent. Essentially, this means that even the continued existence of the largest city of the Levant was not by necessity predicated on the existence of structural food imports, paid for by the proceeds of manufacture and trade.

Many of the results of this study would benefit from being finetuned with the help of better paleoclimatic data for the Roman period. Combined with in-depth studies into actual land use and more surveys of non-urban settlements, we could gain better insight into the population size and agricultural productive capacity of the Roman Near East. More importantly, while increases in settlement numbers and evidence of agricultural expansion have been touched upon several times in this thesis, we need to look at the long-term sustainability of Roman land use. We have looked at a relatively static situation, but a broader temporal perspective will probably add valuable insights. Can we get a more detailed look at the settlements of the Hellenistic period? How did the settlement system develop into the Later Roman and Early Islamic periods? What was the role of climatic change? Did agricultural practices adapt to changing circumstances in a sustainable way?[848]

In this thesis, we have seen that both geographical factors and path dependencies played a large role in the evolution of cities. Among those factors which set the long-term histories of individual cities as well as the development of regional settlement hierarchies on particular trajectories political and administrative decisions made by various monarchs of the early Hellenistic period appear to have been particularly important, but there are also instances of cities being pushed into long-term decline as a result of much later political upheavals.

If we look at the long-term development of the settlement systems of the Roman Levant as a whole, the Roman-imperial period stands out clearly as a period of demographic expansion and settlement growth. Still, even the expanding cities of the Roman Near East were still not particularly large compared to later historical periods, and with the exception of a handful of cities, most of them could very well sustain themselves from the food produced within their hinterlands. It may well be the case that the Roman period witnessed an increase in local, regional and inter-regional trade throughout the geographical area targeted in this monograph,

[848] The ERC funded project 'Climate, Landscape, Settlement and Society: Exploring Human Environment Interaction in the Ancient Near East' directed by Dan Lawrence aims to answer at least some of these questions.

but if such an increase took place, it was clearly not sufficiently strong to overcome the limits set by an economic system in which almost all of the basic food crops consumed by urban populations were grown within the agricultural and administrative territories of the cities concerned.

Appendix

The following tables show settlements with, where available, additional information on evidence for their urban status, known monuments, settlement size, and any additional references and notes. The format is as follows:

Ancient name			Modern name(s)			ID
Evidence for status						Province
Monuments						
Area cat.	Area min.	Area est.	Area max.	Area tpq.	Area taq.	Area notes
References						
Notes						

Area cat. stands for the category for that given area, for instance built-up area, walled area, etc. Min., est. and max. stand for minimum, (likely) estimate and maximum if the estimate falls in a range. TPQ and TAQ stand for terminus post quem and terminus ante quem.

Abalakli Höyük						Abalakli Höyük	2261
(none)							Syria-Coele
(none)							
Built-up area[1]	-	5.5	-	-	-		
[1] Yener, 2005, AS193							
AS193							

Abarara						(none)	2332
(none)							Syria-Coele
(none)							
(none)							
station							

Abila Dekapoleos						Tell Abil	2066
Coin.							Syria-Palestina
Aqueduct; Basilica; Baths; Bridge; Circuit wall; Temple?; Theatre							
Built-up area	-	75	-	-	-		Preferred. NEAEHL I.1. Rough estimate, 'site size' of 05x1.5 km2
[1] Stern et al., 1993, 1-3							

Abila (in Perea)						(none)	2179
(none)							Syria-Palestina
(none)							
(none)							

Abila Lysaniou						Souk Wadi Barada, سوق وادي بردى	2031
(none)							Syria-Phoenice
(none)							
(none)							

Ad Dana						Al Dana, Dāna, الدانا	2236
(none)							Syria-Coele
Baths							
(none)							
1969 built up area up to 60 ha (site inhabited). No clear idea of classical size							

Adraha						Deraa	2032
Coin.							Arabia
Aqueduct; Baths; Circuit wall[2]; Colonnaded street; Orthogonal street plan; Temple; Theatre							
Walled area	-	41.4	-	-	-		Preferred. Dentzer 2010
[1] Fournet et al., 2010 [2] Pflaum, 1952							

Ad Serta						(none)	2333
(none)							Syria-Coele
(none)							
(none)							
station							

Aelia Capitolina						Jerusalem	2059
Stat.; Coin.[8]							Syria-Palestina
Aqueduct; Arch; Baths[4]; Circuit wall[6]; Circus[6]; Colonnaded street; Fort (legionary); Gymnasium; Market; Palace; Public square; Public square (forum)[6]; Temple; Theatre[6]							
Built-up area[1]	-	37	74	135	275		Preferred. Maximum from Mare 1987, estimate after Doron Bar 1998, without the area of Temple Mount.
Built-up area	55	60	75	135	275		Preferred. Estimate after Weksler-Bdolah 2020. 35 to 40 ha unwalled civilian settlement, 20 to 25 hectares walled military camp, and 10 to 12 hectares for the Temple Mount (not added to estimate)
[1] Bar, 1998 [2] Galor et al., 2011 [3] Galor et al., 2013, 116-117 [4] Galor et al., 2013, 125 [5] Galor et al., 2013 [6] Richardson, 2002, 158-159 [7] Richardson, 2002, 129-159 [8] Tal, 2012							

Aere						as-Sanamēn, Sanamein	2015
(none)							Arabia
Temple							
(none)							
[1] Segal, 2013							

Ail						(none)	2191
(none)							Arabia
(none)							
(none)							
[1] Abudanah, 2006, 173-4							
Overbuilt. Fort added to village from 4th century							

Aila						Aqaba	2128
(none)							Arabia
Industry; Port							
Built-up area[1]	-	2	3	-	-		
[1] Parker, 1997, 27 [2] Retzleff, 2003, 56							
Largely overbuilt.							

Akko						Acre, עכּו, عكّا	2077
Stat.[1]; Coin.[2]							Syria-Phoenice
Aqueduct; Baths; Gymnasium; Port							
Walled area	-	100	-	-	-		Preferred. Rough estimate: Broshi 1979 (cit. Prausnitz)
[1] Millar, 1990 [2] Tal, 2012 [3] Bell. Jud. 1.422							

Alagma						Tell Sheikh Hasan	2242
(none)							Osrhoena
(none)							
Built-up area[1]	-	7	7	-	-		
[1] Jong, 2011							

Al Musayfrah						Al Musayfrah, المسيفرة	2248
(none)							Arabia
(none)							
(none)							
[1] Jones, 1971, 293							
Village in territory Bostra							

Amathous						(none)	2335
(none)							Syria-Palestina
(none)							
(none)							

Amida						(none)	2049
(none)							Mesopotamia
(none)							
Walled area	-	165	240	349	-		src: marciak 2017

Anasartha						(none)	2350
(none)							Syria-Coele
(none)							
(none)							

Androna						(none)	2351
(none)							Syria-Coele

(none)						
(none)						
[1] Mango, 2002						

Antarados			Tartus			2217
(none)						Syria-Phoenice
(none)						
(none)						

Anthedon			Blakhiyya			2004
Coin.[1]						Syria-Palestina
(none)						
Built-up area	-	15	-	-	-	Preferred. Rough estimate from Humbert and Saadeq 2000: 250m diameter tell plus 350x300m lower town. (=15.4 ha)
[1] Jones, 1971, 280						

Antioch			Antakya			2091
Stat.; Coin.						Syria-Coele
Aqueduct; Arch; Baths; Baths?; Bouleuterion; Circuit wall; Circus[4]; Colonnaded street; Industry; Nymphaeum; Orthogonal street plan; Public square; Residences; Stadium; Theatre[1]						
Built-up area	480	500	770	100	300	Preferred. This is the figure of the buildable intra-mural area, plus a range between 50 and 250 ha of suburbs.
Walled area	695	730	760	14	395	Tiberian. Of which 120 to 170 ha lay on the island. Of this total area, 430 to 520 ha was buildable.
Walled area	750	770	785	347	565	Theodosian. Of which 120 to 170 ha lay on the island. Of this total area, 460 to 535 ha was buildable.
Walled area	445	455	465	527	-	Justinian. Of this total area, about 280 ha was buildable.
[1] Malalas, Chron. 9.279, 288 [2] Lib. Or. XI, 202 [3] Malalas, Chron. X.xix.36-43. [4] Antioch on the Orontes, 1934 [5] Antioch on the Orontes, 1938 [6] Antioch on the Orontes, 1948 [7] Antioch on the Orontes, 1972 [8] De Giorgi, 2006 [9] De Giorgi, 2007 [10] De Giorgi, 2008 [11] De Giorgi, 2016 [12] Liebeschuetz, 1972 [13] Petit, 1955 [14] Richard, 2012, 259						

Antoninopolis			Viranşehir			2110
(none)						Osrhoena
(none)						
(none)						

Apamea			Qalaat al-Madiq			2099
(none)						Syria-Coele
Aqueduct; Baths; Circuit wall[5]; Colonnaded street; Fort (legionary); Nymphaeum; Orthogonal street plan; Public square (agora); Residences; Sanctuary; Tabernae; Temple; Theatre[4,7]						
Walled area	-	250	-	-	-	Preferred. Dentzer 2010
[1] Balty, 1988, 97 ff [2] Balty, 1988, 92 [3] Balty, 1988						
[4] Finlayson, 2012 [5] Leriche, 2000, 107-109 [6] Richard, 2012, 259, 260 [7] Sear, 2006, 317-318						

Apollonia			Arsuf, ארסוף			2005
(none)						Syria-Palestina
Circuit wall[1]						
Built-up area	-	28	60	350	700	Haddad et al. 2015; See also NEAEHL 72-75
Built-up area	1	5	10	-	350	Preferred. Speculation: NEAEHL 72-75 mentions Roman habitation only near the anchorage. Only excavated building is villa (2008). Suggestion of surrounding buildings. Compare Broshi 1979: speculated size 9 ha.
Walled area	-	7.7	8.9	650	-	Haddad et al. 2015; See also NEAEHL 72-75
[1] Galor et al., 2009, 11-12						

Appadana			(none)			2343
(none)						Osrhoena
(none)						
(none)						

ʻAqrabah			Agrabaa, ʻAqrabah, عقربا			2140
(none)						Arabia
(none)						
(none)						
info: Metrokomia						

Arados			Arwat, Roaud			2078
Coin.						Syria-Phoenice
Circuit wall; Public square (agora)?; Temple?						
Walled area	10	16	16	-	-	Preferred. sat

Arbela (in the Decapolis)			(none)			2177
(none)						Syria-Palestina
(none)						
(none)						

Arbela (of Galilee)			(none)			2178
(none)						Syria-Palestina
(none)						
Built-up area[1]	-	10	-	-	-	Preferred.
[1] Lapin, 2001						

Arca			Tell Arqa			2079
Stat.; Coin.						Syria-Phoenice
(none)						
(none)						

Archelais			Khirbet el Beyudat			2180
(none)						Syria-Palestina
Aqueduct						
(none)						
excavator: H. Himzi						

Areopolis			er-Rabba			2007
Coin.[1]						Arabia
Colonnaded street; Temple; Water management structure						
(none)						
[1] Jones, 1971, 294						

Arethusa			Al-Rastan			2011

(none)						Syria-Phoenice
Temple						
Walled area[2]	30	50	60	-	-	Small sketch by Sauvaget after aerial photography. Compared with corona sat. imagery and measured.
[1] Butcher, 2004, 380 [2] Sauvaget, 1941, 43						

Arieldela (in the Aravah)	(none)	2188
(none)		Arabia
Inn		
(none)		
Caravanserai?		

Arindela	Gharandal	2199
(none)		Arabia
Inn		
(none)		
[1] Walmsley et al., 2001		

Armaouira	(none)	2017
(none)		null
(none)		
(none)		

Arsamosata	(none)	2038
(none)		null
(none)		
(none)		

Artaxata	(none)	2102
(none)		null
Circuit wall; Theatre		
(none)		

AS254						(none)	2258
(none)							Syria-Coele
(none)							
Built-up area[1,2]	-	7.5	9	-	-		issue: Yener gives the site as 300+ by 300+ meters, Gerritsen explicitly as 9 hectares. Corona images rather suggest this is made up of 3 smaller features, with 7.5 ha as an already optimistic estimate.
[1] Gerritsen et al., 2008, 250 [2] Yener, 2005, AS 254							
Site visible on Corona, but no longer on modern sat.							

AS347						(none)	2257
(none)							Syria-Coele
(none)							
Built-up area[3,4]	-	2.25	-	-	-		
[1] De Giorgi, 2006, 210-211 [2] De Giorgi, 2016, 83 [3] Gerritsen et al., 2008, 254 [4] Yener, 2005							

Ascalon						Ashkelon, אַשְׁקְלוֹן	2054
Coin.[4]							Syria-Palestina
Basilica; Baths[2]; Circuit wall; Odeum/Odeion; Public square; Theatre[2]							
Walled area	52	54	60	-	-		Preferred. Stager et al 2008.1: 60 ha. From map there, 54ha intramural. Cf. Broshi 1979 (cit. Garstang 1922:112: 52ha)
[1] Sear, 2006, 302 [2] Stern et al., 1993, 110 [3] Stern et al., 1993, 111 [4] Tal, 2012							

Athela	Atil	2150
(none)		Arabia
Temple		
(none)		
[1] Segal, 2013		

Athis	Dibsi Faraj	2346
(none)		Osrhoena
(none)		
(none)		

Azotos						Ashdod	2027
Coin.[1]							Syria-Palestina
(none)							
Built-up area	-	12	36.4	-	-		Preferred. Broshi 1979 (cit. Dothan: 12 ha); NEAEHL 93 (36.4ha size of whole site, earlier periods)
[1] Tal, 2012							

Azotos Paralios	(none)	2334
(none)		Syria-Palestina
(none)		
(none)		

Bābisqā						Babisqa	2225
(none)							Syria-Coele
Baths[1,3]; Temple							
Built-up area	-	3.5	4	-	-		src: corona
[1] Ball, 2000, 219 [2] Tate, 1992, 65-82 [3] Tchalenko, 1953, 26							
Tchalenko: 2/E-V-23 Tate: 8 rooms							

Bābuṭṭā						Babuta, Babutta	2317
(none)							Syria-Coele
(none)							
Built-up area	0.1	1	3	-	-		src: corona - unclear
Tchalenko 2/D-V-38 Tate: 1 room							

Balanea						Baniyas, بانياس	2097
Coin.							Syria-Phoenice
(none)							
(none)							

Bāmuqqa						Bamuqa, Bamuqqa	2307
(none)							Syria-Coele
(none)							
Built-up area	-	0.5	1	-	-		src: sat
Tchalenko 2/D-V-28 Tate: 4 rooms							

Banaqfūr						Banaqfur	2303
(none)							Syria-Coele
(none)							
Built-up area	1.5	1.5	3	-	-		src: corona
Tchalenko 2/D-VI-41 Tate: 2 rooms							

Bāqirḥā						Baqirha	2224
(none)							Syria-Coele
Temple							
Built-up area	2	2.4	3	-	-		src: corona
[1] Ball, 2000, 219-220							
Tchalenko map 2.D05 29 Tate: 5 rooms							

Bāšakūḥ	Bashakuh	2318
(none)		Syria-Coele

(none)						
Built-up area	0.7	0.9	1	-	-	src: sat
Tchalenko 2/D-V-37 Tate: 2 rooms						

Bāšmišle			Bashmishle			2283
(none)						Syria-Coele
(none)						
Built-up area	4	4.2	6	-	-	src: corona
Tchalenko 2/D-V-32						

Bathyra			Basser, بصير			2253
(none)						Arabia
(none)						
(none)						
Herodian colony						

Batnae			(none)			2003
(none)						Osrhoena
(none)						
(none)						

Batnai			(none)			2329
(none)						Syria-Coele
(none)						
(none)						

Bātūtā			Batuta			2314
(none)						Syria-Coele
(none)						
Built-up area	0.4	0.4	0.6	-	-	src: sat
Tchalenko 1/F-IV-21 plan CXXVIII.10						

Bāzīher			Baziher			2312
(none)						Syria-Coele
(none)						
Built-up area	1.5	1.5	3	-	-	src: corona
Tchalenko 1/F-IV-12 Tate: 18 rooms						

Bā'ūdā			Ba'uda			2305
(none)						Syria-Coele
(none)						
Built-up area	-	0.85	1	-	-	src: corona
Tchalenko 2/E-V-24 Tate: 7 rooms						

Behyō			Behyo			2289
(none)						Syria-Coele
(none)						
Built-up area	-	1	2	-	-	
Tchalenko 2/D-VI-11 Tate: 8 rooms						

Benebil			Benebil			2302
(none)						Syria-Coele
Temple?						
Built-up area	-	1.8	2	-	-	src: corona
[1] Tchalenko, 1953, 15						
Tchalenko 2/C-V-16						

Beroia			Aleppo			2092
Coin.						Syria-Coele
Aqueduct[5]; Circuit wall[10]; Colonnaded street?; Orthogonal street plan; Public square (agora)?; Temple?						
Built-up area[3]	25	28	-	-301	-64	Hellenistic built up area (on basis street grid). From map Sauvaget: 28,14 ha, from text: 25 ha (pLII).
Built-up area[4]	-	59	-	-	-	Preferred. Byzantine size. Sauvaget 1941: figure LIII.
Walled area[1]	93	112	112	-301	526	Sauvaget 1941 43: walls hellenistic, aligned to street grid. ; pl. LII
Walled area[2]	-	115	-	527	-	Justinian phase. Of which 3.95 ha for the citadel. Pl. LIII

[1] Sauvaget, 1941, 43; pl. LII
[2] Sauvaget, 1941, Pl. LIII
[3] Sauvaget, 1941, 52; pl. LII
[4] Sauvaget, 1941, pl. LIII
[5] Sauvaget, 1941, 45
[6] Sauvaget, 1941, 59
[7] Sauvaget, 1941, 47
[8] Sauvaget, 1941, 40, 43
[9] Sauvaget, 1941, 46
[10] Sauvaget, 1941, 42

Berosaba			Beer Sheva			2204
(none)						Syria-Palestina
Fort (legionary)						
(none)						

Berriš (nord)			Berrish			2288
(none)						Syria-Coele
(none)						
Built-up area	0.5	0.5	2	-	-	src: corona
Tchalenko 2/D-V-40 Tate: 8						

Bersabe			(none)			2165
(none)						Syria-Palestina
(none)						
Built-up area[1]	2	3	4	-	-	Preferred.
[1] Leibner, 2009, 125						

Berytus			Beirut, بيروت			2080
Stat.; Coin.						Syria-Phoenice
Amphitheatre[1]; Aqueduct[1]; Baths; Circus[2]; Colonnaded street; Nymphaeum?; Port; Tabernae; Temple; Theatre[1]						
Built-up area	50	50	70	-	6	Order of size from map Perring 2003, 18. Bound by locations cemeteries as in Stewart 2003 (max. 70ha).; cf map in curvers and stuart 2007
[1] Hall, 2004, 64						
[2] Hall, 2004, 66						
[3] Richard, 2012, 262						

Bethletepha			(none)			2338
(none)						Syria-Palestina
(none)						
(none)						

Bethsaida			Et-Tell			2117
(none)						Syria-Palestina
Temple?						
Built-up area[1,2]	-	8	-	-	-	Preferred.
[1] Araus et al., 2007, 297						
[2] Arav, 2011, 94						
See Arav 2011 for the definite absence of Roman entertainment buildings. Note discussion on location el-Araj vs. et-Tell (references in Kuhn 2015)						

Beth She'arim			(none)			2168
(none)						Syria-Palestina
Basilica?						
(none)						
[1] Bonnie, 2014, 150, 153						

Biblada			(none)			2341
(none)						Mesopotamia
(none)						
(none)						

Bir el Mazar			(none)			2184
(none)						Aegyptus
(none)						

Built-up area[1]	-	4	-	-	-	Preferred.
[1] Stern et al., 1993, 1395						

Bir Madhkhur	Bir Madhkhur	2189
(none)		Arabia
(none)		
(none)		
Later castellum		

Birsama			Horvat Be'er Shema			2321
(none)						Syria-Palestina
(none)						
Built-up area[1,2]	-	3	3	-	-	Overall site size given as 40 to 50 ha in Dolinka, but Gini indicates that actual (Byzantine) village should be located in unexcavated 3 ha area.
[1] Dolinka, 2007 [2] Erickson-Gini, 2011						
(Dolinka 2007/Erickson-Gini 2011) Indicated in Kyprios' Descriptio Orbis Romani as centre for the Gerar region. Finds in 2006 excavations only from Byzantine period, however, main village not excavated						

Borechath Sabaon	Breikeh, بريكة	2142
(none)		Arabia
Temple		
(none)		
[1] Segal, 2013, 184-186		
info: Metrokomia		

Bostra			Bosra			2034
Stat.; Coin.						Arabia
Aqueduct; Basilica; Baths[4]; Circuit wall[8]; Circus[3,9]; Colonnaded street; Fort (legionary); Gate; Market; Nymphaeum; Orthogonal street plan; Palace?; Public square (agora); Temple; Temple?; Theatre[10]; Water management structure						
Walled area	-	80	-	-	-	Preferred. Dentzer 2010
[1] IGLS XIII 9143 [2] Richard, 2012, 262 [3] Sartre, 1985, 95-96 [4] Sartre, 1985, 95 [5] Sartre, 1985, 94 [6] Sartre, 1985, 92, 95 [7] Sartre, 1985, 96 [8] Sartre, 1985, 56-58, 88 [9] Sear, 2006, 308 [10] Sear, 2006, 308-309 [11] Segal, 1997, 48-49 [12] Segal, 2013, 219-221						

Botrys	Batroun	2009
(none)		Syria-Phoenice
Theatre[1]		
(none)		
[1] Frezouls, 1959, 216		

Brad			Barad, Beradê, Brad, براد			2223
(none)						Syria-Coele
Baths[1,4]; Horrea; Inn; Temple						
Built-up area[2]	12	15	20	-	-	src: corona
[1] Ball, 2000, 219 [2] Tchalenko, 1953, Pl. CXXXIII.22 [3] Tchalenko, 1953, Pl. CXXXIII [4] Tchalenko, 1953, 26						
Tchalenko Plan CXXXIII.22						

Bšendlāyā			Bshendlaya, بشندلاية			2300
(none)						Syria-Coele
(none)						
Built-up area	2.4	2.4	5	-	-	src: corona
Tchalenko 2/C-VI-22						

Buraq	Buraq, براق	2139
(none)		Arabia
(none)		
(none)		
Possibly Aenos - pleiades id: 682522		

Byblos			Jubayl, جبيل			2081
Coin.						Syria-Phoenice
Colonnaded street; Nymphaeum; Port; Temple; Theatre						
Built-up area	20	40	60	-	-	
[1] Carayon, 2008 [2] Carayon et al., 2011						

Caesarea			קיסריה			2065
Stat.; Coin.						Syria-Palestina
Amphitheatre[1]; Aqueduct; Circuit wall[5]; Circus[2]; Orthogonal street plan; Palace; Port; Public square (agora); Residences; Temple; Theatre[6]						
Walled area	-	65	-	-37	400	Preferred. Patrich 2011:42
Walled area	-	94	-	400	-	Patrrich 2011: 94
[1] Patrich, 2011, 44 [2] Patrich, 2011, 43 [3] Patrich, 2011, 111 [4] Patrich, 2011, 68-69 [5] Patrich, 2011, 42, 94 [6] Sear, 2006						

Caesarea Paneas			Banias, בניאס			2083
Coin.						Syria-Phoenice
Aqueduct[2]; Baths[7]; Bridge; Colonnaded street; Palace; Temple; Theatre?						
Built-up area[1]	-	100	-	101	-	Preferred.
Built-up area[3]	-	20	-	-6	100	
[1] Stern et al., 1993 [2] Stern et al., 1993, 137-142 [3] Tzaferis, 2007, 335 [4] Tzaferis, 2007, 335-336 [5] Tzaferis, 2007, 337-8 [6] Tzaferis, 2007, 338 [7] Tzaferis, 2007, 341-342 [8] Tzaferis, 2007, 337						

Çakal Tepe	Çakal Tepe, Tell Habish	2272
(none)		Syria-Coele
(none)		
Built-up area[1]	- 4.5 - - -	
[1] Yener, 2005, AS 113		
AS 113		

Canatha			Qanawat			2035
Coin.						Arabia
Aqueduct; Baths[5]; Circuit wall[3]; Nymphaeum; Odeum/Odeion; Public square; Temple						
Walled area[1,4]	-	16	-	325	-	Freyberger 2000:144 16 ha; 2003. Unclear whether buildings to the west were part of the earlier city.
[1] Freyberger, 2000, 144 [2] Freyberger, 2000, 149 [3] Freyberger, 2000, 144, 150-151 [4] Freyberger, 2003 [5] Freyberger, 2003, 4 [6] Freyberger, 2003, 5 [7] Segal, 2013, 195-197, 199-200 [8] Seligman, 2013, 197-199						

Capernaum			Kfar Nahum			2116
(none)						Syria-Palestina
Aqueduct?; Baths[1]; Temple						
Built-up area[2,3]	4	17	32	-	-	Preferred.

[1] Bonnie, 2014, 153
[2] Lapin, 2001
[3] Stern et al., 1993, 292

Capitolias			Beit Ras			2070
Coin.						Syria-Palestina
Circuit wall[4]; Market; Orthogonal street plan; Theatre[1]						
Walled area[2]	6	7	8	-	-	Preferred. src: From map Lenzen 2002 38
[1] Karasneh, 2002 [2] Lenzen, 2002, 38 [3] Lenzen, 2002, 39-40 [4] Lenzen, 2002, 39						

Carrhae			Harran, Harran			2050
Stat.[2]; Coin.						Osrhoena
Sanctuary						
(none)						
[1] Jong, 2011, 269 [2] Millar, 1990 [3] Cass. Dio 79,5,4 [4] Amm. 23,3,2						

Chalcis ad Belum			Al-Eis, العيس			2093
Coin.						Syria-Coele
Circuit wall[3]; Fort (legionary); Orthogonal street plan						
Walled area	-	75	-	400	700	Rousset 2012, from map (Byzantine fortifications)
[1] Rousset, 2012, 557 [2] Rousset, 2012, 553 [3] Rousset, 2012, 553-554						
info: sat. shows numerous looting pits						

Characmoba			(none)			2008
Coin.[1]						Arabia
(none)						
(none)						
[1] Jones, 1971, 294						

Chatal Höyük			Chatal Höyük			2269
(none)						Syria-Coele
(none)						
Built-up area	-	0.6	10	-	-	Haines 1971,9. Roman finds limited to area 1 of the tell.
AS168, 10ha (tell size)						

Chorazin			(none)			2164
(none)						Syria-Palestina
(none)						
Built-up area[1]	7	10	35	-	-	Preferred.
[1] Lapin, 2001						

Circersium			(none)			2344
(none)						Osrhoena
(none)						
(none)						

Cudeidah			Cudeidah			2270
(none)						Syria-Coele
Industry?						
Built-up area[1]	-	10	10	-	-	Diffuse site, size may be overstated.
[1] Yener, 2005, AS205 [2] Yener, 2005, 243, AS 205						
AS205, 10 ha info: not to be confused with Tell al-Judeidah (AS176), which while a well-known large site for earlier periods, only has a very minor Roman presence. info: Yener, and De Giorgi suggest this site may be a quarry, reused as a cemetery.						

Cyrrus			حوروس			2040
Coin.						Syria-Coele
Bridge; Circuit wall; Fort (legionary); Streets; Theatre						
Walled area	-	65	-	-	-	Preferred. Al Shbib 2012, from map.
[1] Tac. Ann. 2.57.2						

Dadima			(none)			2039
(none)						null
(none)						
(none)						

Damascus			Damascus			2088
Stat.; Coin.						Syria-Phoenice
Aqueduct[2]; Arch; Circuit wall[7]; Circus[10,16]; Colonnaded street; Gate; Gymnasium; Nymphaeum?; Odeum/Odeion?; Orthogonal street plan; Public square; Temple; Theatre[13,17]						
Walled area[4,9]	-	125	128	-	-	Preferred. Will 1989
[1] Burns, 2005, 55 [2] Burns, 2005, 58 [3] Burns, 2005, 54, 57 [4] Saad et al., 2013, 1-4 [5] Saad et al., 2013, 3 [6] Saad et al., 2013, 1-5 [7] Saad et al., 2013, 6-8 [8] Segal, 1997, 48 [9] Will, 1989 [10] Will, 1994, 34 [11] Will, 1994, 38-40 [12] Will, 1994, 26 [13] Will, 1994, 11, 34 [14] Will, 1994, 21-34 [15] Will, 1994, 39-40 [16] Jos. Ant. XIII.387 [17] Jos.BJ I.21.11						

Daphne			Harbiye			2211
(none)						Syria-Coele
Aqueduct[1]; Baths[1]; Residences; Stadium; Theatre						
(none)						
[1] Libanius Or. 11.236-237						

Darqītā			Darqita			2298
(none)						Syria-Coele
(none)						
Built-up area	-	2.4	2.4	-	-	src: corona
Tchalenko 2/D-V-18 Tate: 20 rooms						

Dar Taizzah			Dar Ta izzah, Dar Taizzah, Dart'azze, دار تعزة			2232
(none)						Syria-Coele
(none)						
(none)						
1969 size 18 hectares, but inhabited. (See also Tchalenko photgraph CLXVIII.5)						

Dēḥes			Dehes			2280
(none)						Syria-Coele
(none)						
Built-up area[1]	7	7.8	9	-	-	src: corona
[1] Tchalenko, 1953, CXXXVI.30						
Tchalenko 2/D-V-42 Tate: 14 rooms						

Deir Mishmish			Deir Mishmish, Deir Mišmiš			2239
(none)						Syria-Coele
Temple						
Built-up area	1	1.5	2	-	-	src: corona
[1] Tchalenko, 1953, 37						

Deir Serur			Deir Serur, Khirbet Samara			2132
(none)						Syria-Palestina
Temple						
Built-up area[1]	-	3	-	-	-	Preferred.
[1] Stern et al., 1993, 1424 [2] Tsafrir, 1994, 111						
NEAEHL 1424: 'one of the largest Roman sites in Samaria'						

Deir ʿAmān			Deir Aman			2316
(none)						Syria-Coele
(none)						
Built-up area	2.2	3	4	-	-	src: corona
Tchalenko 1/F-V-19 Tate: 4 rooms						

Derkoush			Darkush, Derkoush, Derkush, دركوش			2220
(none)						Syria-Coele
Bridge; Industry						
Built-up area	-	7	-	-	-	src: corona issue: obviously modern size
[1] IGLS 2.665 [2] Butcher, 2004, 134						
Tchalenko map 2.B08						

Diocaesarea			Zippori, צִפּוֹרִי			2074
Coin.						Syria-Palestina
Aqueduct[6]; Baths[4]; Colonnaded street; Market?; Orthogonal street plan; Palace; Temple; Theatre[6]						
Built-up area[1,5]	40	50	60	100	-	Preferred.
Built-up area[1]	10	15	20	1	100	
[1] Bonnie, 2014, 186-187 [2] Bonnie, 2014, 110-120 [3] Bonnie, 2014, 153 [4] Bonnie, 2014, 122-123, 153, 153 [5] Lapin, 2001, 88 [6] Stern et al., 1993, 1325						
info: Bonnie 2014; Weiss 2015 - possible library or archive						

Dion			Tell al-Ashʿarī			2134
Coin.[1]						Arabia
(none)						
(none)						
[1] Kropp et al., 2006, 135						
info: sat. images suggests heavy looting						

Dionysias			Suweda, Suweida			2112
(none)						Arabia
Aqueduct; Baths[4]; Bridge; Circuit wall[5]; Cisterns; Colonnaded street; Nymphaeum; Odeum/Odeion; Orthogonal street plan; Temple; Theatre[2]						
Walled area[1]	35	42.1	-	-	-	Preferred. Dentzer 2010
[1] Dentzer et al., 2010, 157, 164 [2] Dentzer et al., 2010, 156-157 [3] Dentzer et al., 2010, 155, 156 [4] Dentzer et al., 2010, 156 [5] Dentzer et al., 2010, 150 [6] Dentzer et al., 2010, 155 [7] Dentzer et al., 2010, 148 [8] Richard, 2012, 280 [9] Segal, 2013, 216-218						

Diospolis			Lod			2061
Coin.[1]						Syria-Palestina
Basilica?; Baths; Colonnaded street; Public square; Temple?						
Built-up area	-	60	-	-	-	Preferred. Schwartz 1987. Poor estimate from very tentative map, including 28ha 'swampy north area' and 32 ha 'old town'. Not including 18 ha tell site, as it has no Hellenistic/Roman finds.
[1] Jones, 1971, 278 [2] Schwartz, 1987						

Dor			Tel Dor			2056
Coin.[5]						Syria-Palestina
Aqueduct; Baths[4]; Industry; Orthogonal street plan; Port; Public square; Temple; Theatre[2]						
Built-up area	11	11	12	-	-	Preferred. From map NEAEHL 357
[1] Stern et al., 1993, 363 [2] Stern et al., 1993, 358 [3] Stern et al., 1993, 362 [4] Stern et al., 1993, 364 [5] Tal, 2012						

Dura-Europos			(none)			2103
Stat.						Syria-Coele
Bouleuterion?; Circuit wall[5]; Fort (legionary); Orthogonal street plan; Palace; Public square; Tabernae; Temple						
Walled area	-	58	-	-	-	Preferred. Dentzer 2010
[1] Sommer, 2005, 273, 274 [2] Sommer, 2005, 273, 279-280, 280, 282 [3] Sommer, 2005, 278 [4] Sommer, 2005, 273 [5] Sommer, 2005, 273, 275						

Eddana			(none)			2340
(none)						Syria-Coele
(none)						
(none)						

Edessa			Şanlıurfa			2051
Stat.; Coin.						Osrhoena
Baths[2]; Circuit wall[2]						
Walled area[1]	-	140	-	-	-	Preferred.
[1] Ross, 2001, 103 [2] Ross, 2001, 104						
Heavily overbuilt						

El Bara			Al-Bara, El-Kafr, البارة			2278
(none)						Syria-Coele
(none)						
(none)						
Tchalenko 3/C-XI-9 1960's size on Corona of el-Kafr area is about 30 hectares, but site only grows to such a size by 5th c Tchalenko plan CXXXVIII						

El Bettir			El Bettir			2291
(none)						Syria-Coele
(none)						
Built-up area	-	1.1	1.5	-	-	src: sat
Tchalenko 2/D-VI-34 Tate: 3 rooms						

El Burdaqli			(none)			2296
(none)						Syria-Coele
(none)						
Built-up area	6	8	10	-	-	src: corona
Tchalenko 1/E-V-14						

Elegoana			(none)			2013
(none)						null
(none)						
(none)						

Eleutheropolis			Beit Guvrin, בֵּית גַּבְרִין			2055
Coin.[1]						Syria-Palestina
Amphitheatre[2]; Aqueduct; Temple						
Built-up area	-	30	-	-	-	Preferred. NEAEHL 195
[1] Jones, 1971, 278 [2] Stern et al., 1993, 195						

El Hosn			(none)			2279
(none)						Syria-Coele
Temple						
Built-up area	3	4	6	-	-	src: Corona
Tchalenko 2/B-VI-6						

El Mšabbak			Mchabbak, Mshabbak			2281
(none)						Syria-Coele

(none)						
Built-up area	-	2.2	2.5	-	-	src: corona
Tchalenko 1/F-V-8 Tate: 28 rooms						

el-Mushennef			Al-Mushannaf, el-Mushennef, المشنف			2153
(none)						Arabia
Temple						
(none)						
[1] Segal, 2013, 213-216						

Elousa			Haluza, חלוצה			2030
(none)						Arabia
Industry; Orthogonal street plan; Temple; Temple?; Theatre[6]; Water management structure						
Built-up area[1,3,4]	13	13	39	1	200	Sartre 2001 (cit. Negev 1988:39 ha); NEAEHL 380: one third of site built up from middle to late Nabatean period. Note, sizes Negev after Sherehevski 1986, from aerial photography
Built-up area[2,3,4]	13	39	39	200	400	Preferred. Sartre 2001 (cit. Negev 1988:39 ha); NEAEHL 380: one third of site built up from middle to late Nabatean period. Note, sizes Negev after Sherehevski 1986, from aerial photography
[1] Negev, 1988, 2 [2] Negev, 1988 [3] Sartre, 2001 [4] Stern et al., 1993, 380 [5] Stern et al., 1993, 380, 381 [6] Stern et al., 1993, 380-382 [7] Stern et al., 1993, 380-381 [8] Stern et al., 1993, 1380-1382						

Emesa			Homs			2087
Stat.; Coin.						Syria-Phoenice
(none)						
Walled area	-	125	-	-	-	Preferred. Poor estimate based on the size of the fortifications around the old town, pulled down by the Ottomans. Supposed to follow the remains of the Roman walls (cf Gaza).
[1] Abdulkarim, 2001 [2] Kropp, 2013						

Emmatha			Hamat Gader, חַמַּת גָּדֵר			2154
(none)						Syria-Palestina
Aqueduct; Baths; Colonnaded street; Odeum/Odeion; Temple						
Built-up area	6	6.4	7	-	-	Preferred. From map Hirschfeld 1987
[1] Segal, 1997						
Known for its baths						

Emmaus Nicopolis			Amwas, Imwas			2057
Coin.						Syria-Palestina
Amphitheatre?[1]; Aqueduct[2]; Baths[2]; Cisterns; Nymphaeum						
Built-up area	40	45	50	-	-	Preferred. Fleckenstein et al. 2003: possibly half a square km for the 'Roman-Byzantine' settlement. Underneath highway interchanges Jerusalem-Tel Aviv.
[1] Fleckenstein et al., 2003, 302 [2] Fleckenstein et al., 2003, 309						

Engaddai			Ein Gedi			2155
(none)						Syria-Palestina
Aqueduct[1]						
(none)						
[1] Hirschfeld, 2005, 352 [2] Hirschfeld, 2005						

En Rimmon			Horvat Rimmon, Khirbet Umm er Rumamin			2118
(none)						Syria-Palestina
Temple						
Built-up area[1]	-	10	-	-	-	Preferred.
[1] Stern et al., 1993, 1284-1285						

En Thamar			(none)			2182
(none)						Arabia
(none)						
(none)						

Epiphaneia			Hama			2010
(none)						Syria-Coele
Aqueduct?						
(none)						

Eragiza			(none)			2325
(none)						Syria-Coele
Circuit wall; Fort (auxiliary)						
Walled area	-	12	-	-	-	

er-Rama			er-Rama, Rame			2167
(none)						Syria-Palestina
Baths[1]						
(none)						
[1] Bonnie, 2014, 153						

Eruandakert			(none)			2018
(none)						null
(none)						
(none)						

Eruandashat			(none)			2019
(none)						null
(none)						
(none)						

Esbous			Tell Hesban, Tell Hisban			2001
Coin.						Arabia
Temple						
Built-up area[1]	-	6	6	-	-	Preferred. Size of mound, confirmed by sat. image.
[1] Stern et al., 1993, 626						

Esen Tepe			al-Kanisah, Esen Tepe			2260
(none)						Syria-Coele
(none)						
Built-up area[1,2]	-	9.8	12	-	-	Corona suggests 9.8 ha size for mound
[1] Gerritsen et al., 2008 [2] Yener, 2005, AS 29						

Eš Šeiḫ Sleimān			Esh Sheikh Sleiman			2282
(none)						Syria-Coele
(none)						
Built-up area	-	7.5	-	-	-	src: Corona
Tchalenko 1/G-IV-28 Tate: 64 rooms						

Europos			Jarabulus, Karkamış, جرابلس			2002
(none)						Syria-Coele
Colonnaded street; Public square; Temple						
Walled area	30	40	40	-300	500	Preferred. src: Newson 188 in Carchemish in Context
[1] Marchetti, 2012, 136						

Eutimia			Al Harah, al-Hārrah, الحارة			2244
(none)						Arabia
(none)						
(none)						
info: later episcopal seat, instead of nearby metrokomia of Akraba (sartre 1999, 216-217).						

Fāfertin			Fāfirtīn, فافرتين			2286
(none)						Syria-Coele
(none)						
Built-up area	2	3	4	-	-	src: corona
Tchalenko 1/G-IV-10						

Fidre			Fedra, فدره			2309
(none)						Syria-Coele
(none)						
Built-up area	1.5	3	3	-	-	src: sat
Tchalenko 1/F-IV-14 Tate: 12 rooms						

Frikyā			Farkia, Frikya, فركيا			2297
(none)						Syria-Coele
(none)						
Built-up area	3.3	4.3	4.3	-	-	src: corona
Tchalenko 3/D-XI-1						

Gabala			Jableh			2094
Coin.						Syria-Coele
Orthogonal street plan; Port; Theatre						
(none)						

Gaba Philippi			(none)			2067
Coin.						Syria-Palestina
Aqueduct						
Built-up area	-	14	-	-	-	Preferred. Lapin 2001:89 (after Siegelman 1984)

Gabboula			(none)			2328
(none)						Syria-Coele
(none)						
(none)						

Gadara			Umm Qais			2068
Coin.						Syria-Palestina
Aqueduct; Arch; Baths; Circuit wall[4]; Circus; Colonnaded street; Nymphaeum; Orthogonal street plan; Tabernae; Temple; Theatre[7]						
Walled area[1]	21	22	23	-	-	Preferred. From map Hoffman 2002.
Walled area	28	30	31	-	-	Preferred. From sat, after map Bührig 2015
[1] Hoffmann et al., 2002, 100, 110-110, 124 [2] Hoffmann et al., 2002, 115, 117 [3] Hoffmann et al., 2002 [4] Hoffmann et al., 2002, 112 [5] Hoffmann et al., 2002, 98-124 [6] Richard, 2012, 268-269 [7] Sear, 2006, 310, 310-311						
[8] Segal, 1997						
Ongoing studies headed by Claudia Bührig on city and hinterland. See https://www.dainst.org/projekt/-/project-display/115540						

Gadora			As Salt, Tell Jadur, السلط			2135
(none)						Syria-Palestina
(none)						
(none)						
Overbuilt. In Decapolis according to Ptolemy, former toparchy capital Perea. Not to be confused with Gadara at Umm Qais						

Gaia			(none)			2193
(none)						Arabia
Residences; Temple; Water management structure						
(none)						

Gaza			Gaza			2058
Stat.; Coin.[1]						Syria-Palestina
Circuit wall?; Temple?						
Walled area	42	46	50	-	-	Preferred. Poor estimate based on assumption that the course of the 19th c. fortifications match that of the Roman walls (based on Clark et al 2004) Tell is roughly 100 ha. Cf. also Broshi 1979 cit. Goldrat: 90ha.
[1] Tal, 2012 [2] Vita Porphyrii						

Gazica			(none)			2342
(none)						Mesopotamia
(none)						
(none)						

Gephyra			Demirköprü, Jisr Hadid			2255
(none)						Syria-Coele
Bridge						
Built-up area[2]	-	8	13.2	-	-	
[1] Gerritsen et al., 2008, 253 [2] Yener, 2005						
Heavily overbuilt						

Gerade			Gerade, Jerade			2273
(none)						Syria-Coele
(none)						
Built-up area	-	7.2	9	-	-	src: corona
Tchalenko 3/E-XI-2 Tate: 55 rooms around 250CE						

Gerar			Tel Haror			2183
(none)						Syria-Palestina
(none)						
(none)						
[1] Jones, 1971, 282						
No indications at site itself for Roman settlement. The region however is still present in the bishoprics lists as an estate, the saltus Gerariticus. Note, Birsama (to the south) identified as capital of saltus in 7th century. Related: Pleiades 688021 (saltus gerariticus)						

Gerasa			Jarash, Jerash			2036
Coin.						Arabia
Aqueduct; Arch; Arch (triumphal); Baths[14]; Circuit wall[10]; Circus[11]; Colonnaded street; Market; Nymphaeum; Odeum/Odeion; Orthogonal street plan; Public square; Temple; Theatre[7]						
Walled area[4,10]	85	85	87.3	-	-	Preferred. Raja 2012
[1] Hoffmann et al., 2002, 9, 19 [2] Kennedy, 2000, 200 [3] Kennedy, 2000 [4] Raja, 2012 [5] Richard, 2012, 269						

[6] Richardson, 2002, 101
[7] Sear, 2006, 311, 312
[8] Sear, 2006, 312
[9] Segal, 1997
[10] Stern et al., 1993, 470
[11] Stern et al., 1993, 472-474
[12] Stern et al., 1993, 472ff
[13] Stern et al., 1993, 472
[14] Stern et al., 1993, 473

Gerra	(none)	2175
(none)		Aegyptus
(none)		
(none)		

Gindaros			Cindirêsê			2213
(none)						Syria-Coele
(none)						
Built-up area	10	15	17	-	-	Preferred. info: tell size from Corona image

Gischala			Gush Halav			2161
(none)						Syria-Palestina
(none)						
Built-up area[2]	-	7.8	7.8	-	-	Preferred. Village, tell and lower town
[1] Bonnie, 2014, 408 [2] Frankel, 2001, 41-42, nr. 340 and 348						
Was a significant village before the revolt (Jos. BJ 2.629). Architectural remains from second to fourth century.						

Gophna			(none)			2207
(none)						Syria-Palestina
(none)						
(none)						

Ḥarāb Šams			Kharab Shams			2284
(none)						Syria-Coele
(none)						
Built-up area	-	1.7	2	-	-	src: corona
Tchalenko 1/G-IV-5 Tate: 20 rooms						

Hatra			Hatra			2104
(none)						null
Circuit wall; Fort (legionary); Temple						
Built-up area	310	314	314	-	-	Preferred. Sommer 2005
Walled area	310	314	314	-	-	Sommer 2005
[1] Sommer, 2005, 355						

Hauara			Humayma, Humeima			2157
(none)						Arabia
Aqueduct[3]; Fort (legionary); Water management structure						
Built-up area[1]	-	10	-	-	-	Preferred.
[1] Kennedy, 2004 [2] Kennedy, 2004, 193-198 [3] Oleson, 2007						

Hayat			Al Hayyat, Hayat, الهيات			2144
(none)						Arabia
Temple						
(none)						
[1] Segal, 2013, 182-183						

Hebran			Hebran, Hobran, حبران			2152
(none)						Arabia
Temple						
(none)						
[1] Segal, 2013, 218						

Hebron			(none)			2336
(none)						Syria-Palestina
(none)						

(none)						

Hegra			Al-Hijr, Madâ'in Sâliḥ, Madâin Sâliḥ, Madā'in Ṣāliḥ, مدائن صالح			2156
(none)						Arabia
Arch; Circuit wall; Cisterns; Inn; Temple; Water management structure						
Walled area[2]	-	52.5	-	-	-	Preferred.
[1] Hegra 35004_i06 [2] Nehmé et al., 2015, 37-39 [3] Nehmé et al., 2015, 77 [4] Nehmé et al., 2015, 77-83 [5] Nehmé et al., 2015, 38						

Heliopolis			Baalbek			2089
Stat.[2]; Coin.						Syria-Phoenice
Aqueduct; Baths[3]; Circuit wall; Colonnaded street?; Temple; Theatre[4]						
Walled area	-	70	-	-	-	Preferred. Freyberger and Ragette 1999:45 (70, intramural)
[1] Freyberger et al., 1999 [2] Millar, 1990 [3] Rheidt, 2008 [4] Rheidt, 2008, 233						

Ḫerbet el Ḥaṭīb			Kherbet el Khatib			2306
(none)						Syria-Coele
(none)						
Built-up area	-	1.1	1.3	-	-	src: corona
Tchalenko 2/D05-17 Tate: 9 rooms						

Ḫerbet Eš Šarqiye			Kherbet Esh Sharqiye			2299
(none)						Syria-Coele
(none)						
(none)						
Tchalenko 2/B-VIII-3 issue: not Sharqiye in north						

Hierapolis Bambyke			Mambij			2043
Coin.						Syria-Coele
Aqueduct; Colonnaded street; Necropolis; Temple; Theatre						
(none)						
[1] De Dea Syria [2] Amm. 23.2.6-7 [3] Ball, 2000, 93 [4] Ball, 2000, 271						

Hierichous			(none)			2028
(none)						Syria-Palestina
Aqueduct						
(none)						
info: Roman finds rather at Tell abu Hindi, (and Tell Hassan?), later Roman under modern city.						

Hippos			(none)			2069
Coin.						Arabia
Aqueduct; Arch; Baths[2]; Circuit wall[4]; Circus?[5]; Colonnaded street; Odeum/Odeion; Public square; Public square (forum)[2]; Temple						
Walled area[1]	-	8.6	-	-	-	Preferred.
[1] Segal et al., 2007, 88 [2] Segal et al., 2007, 102 [3] Segal et al., 2007, 98, 101-102 [4] Segal et al., 2007, 95 [5] Weiss, 2011, 369 [6] סג"ל et al., 2011						

Horlak Atika			Horlak Atika, Tell Khorlak			2271
(none)						Syria-Coele
(none)						
Built-up area[1]	-	4	-	-	-	
[1] Yener, 2005, AS 122						
AS 122						

Iabruda	(none)	2348
(none)		Syria-Phoenice
(none)		
(none)		

Iamneia	Yavne	2029
(none)		Syria-Palestina
(none)		

Built-up area	12	50	50	-	-	Preferred. Broshi 1979 (cit. Gophna). Fischer and Taxel 2007 give 12 ha for the tell, Kletter et al. 2010 gives 15 ha for the tell, but it is clearly indicated in both articles that the settlement extended beyond this (although no figure is given).

Iamneia Paralios	Yavne Yam	2205
(none)		Syria-Palestina
Port		

Built-up area[1]	-	10	-	-	Preferred.

[1] Broshi, 1979

Ichnae	(none)	2327
(none)		Osrhoena
(none)		

Built-up area[1]	-	5	-	200	300
Built-up area	-	9	-	-100	200

[1] Jong, 2011, 266
[2] Jong, 2011

Imma	Reyhanlı, Yenişehir	2212
(none)		Syria-Coele
(none)		

Built-up area[1]	-	3	-	-	Preferred.

[1] Yener, 2005, AS345

Ioppe	Jaffa, Yafo, יָפוֹ	2060
Coin.[1,2]		Syria-Palestina
(none)		

Built-up area	3	9	9	-	-	Preferred. Peilstöker and Burke 2011 (3ha tell, up to 9 including lower town)

[1] Peilstöcker et al., 2011, 105
[2] Tal, 2012

Iram	Wādī Ramm, Wadi Rum	2186
(none)		Arabia
Baths; Residences; Temple		
(none)		

[1] Kennedy, 2004, 204

Jebel Sheikh Barakat	Esh Sheikh Barakat, Jebel Sheikh Barakat	2226
(none)		Syria-Coele
Temple		

Built-up area	2	3.3	4	-	-	info: from satellite imagery

[1] Ball, 2000, 219
[2] Tchalenko, 1953, 106

Temple and houses. Tchalenko map 1.F04 23. Associated village, Tchalenko map 1.F04 28, lies 750 meters to the west.

Jisr Ash Shughur	Gisr as-Sugur, Jisr al-Shughur, Jisr ash-Shugur, جسر الشغور	2219

(none)		Syria-Coele
(none)		

Built-up area	-	8.2	8.2	-	-	src: corona, tell size

Kadasa	(none)	2162
(none)		Syria-Phoenice
Temple		

Built-up area[1]	-	9.5	-	-	-	Preferred.

[1] Stern et al., 1993, 855
[2] Stern et al., 1993, 859

Kafr Nabo	Kafr Nabo, Kafr Nabu	2228
(none)		Syria-Coele
Temple?		

Built-up area	1.8	2	4	-	-	src: corona issue: rather spread out

[1] Ball, 2000, 219
[2] Tate, 1992, 65-82, note 1

Tchalenko 1/G-IV-1 Tate: 57 rooms

Kainepolis	(none)	2020
(none)		null
(none)		
(none)		

Kalōta	Kalota, Kalūte, كالوطة	2240
(none)		Syria-Coele
Temple		

Built-up area	4	4.5	5	-	-	src: corona

[1] Tchalenko, 1953

info: Temple approximately 500 meters to the east, on high place (Tchalenko map 1/G-IV-04, Qalʿat Kalōta) Tate: 8 rooms Plan CXXIX

Kaprokera	Burdj Heidar, Burǧ Heidar	2241
(none)		Syria-Coele
Temple?		

Built-up area	2.6	3	3.3	-	-	src: corona

[1] Tchalenko, 1953, 15

Burǧ Heidar

Karataş	Karataş, Nejar Tepe	2268
(none)		Syria-Coele
(none)		

Built-up area[1]	-	5	6.45	-	-	5 ha from Corona

[1] Yener, 2005, AS 151

AS151

Kasion	(none)	2174
(none)		Aegyptus
(none)		
(none)		

Kastal Çiftliği	Kastal Çiftliği	2263
(none)		Syria-Coele
(none)		

Built-up area[1]	-	5	-	-	-	

[1] Yener, 2005, AS 206

AS206

Kefar Ḥananya	Kefar Ḥananya, Kfar Hanania, כְּפַר חֲנַנְיָה	2163
(none)		Syria-Palestina
Aqueduct; Industry		

Built-up area[2]	4.1	5	6	-	-	Preferred.

[1] T Bava Metzia 6.3
[2] Leibner, 2009, 135
[3] Leibner, 2009, 132

Kefr Fenše	Kefr Fenshe	2293
(none)		Syria-Coele
(none)		

(none)						
Tchalenko 2/D-VI-24						

Kfar Rouma			Kfer Rūma			2277
(none)						Syria-Coele
Temple						
(none)						
[1] Tchalenko, 1953, 14						
Tchalenko 3/D-XII-2						

Kfeir			Kfeir			2290
(none)						Syria-Coele
(none)						
Built-up area	1	1.5	2	-	-	src: corona
Tchalenko 2/C-V-23 Tate: 5 rooms						

Kfellūsīn			Kafaldīn, Kfellusin, كفلدين			2315
(none)						Syria-Coele
(none)						
Built-up area	1.5	1.5	3	-	-	src: corona
Tchalenko 1/E-V-4 Tate: 6 rooms						

Khirbat Ra'fah			Er-Rafeh, Khirbat Ra'fah, Rayfa			2146
(none)						Arabia
(none)						
(none)						
info: Metrokomia info: near Sheikh Miskin/Maskin						

Khirbet al-Tahoun			Khirbet al-Tahoun			2256
(none)						Syria-Coele
(none)						
Built-up area[1]	-	4.5	-	-	-	
[1] Yener, 2005, AS202						
AS202						

Khirbet Brak			(none)			2194
(none)						Arabia
(none)						
(none)						
megajordan: 4247						

Khirbet ed-Dharih			Khirbet ed-Dharih			2201
(none)						Arabia
Temple						
(none)						
type: sanctuary						

Khirbet et-Tannur			Khirbet et-Tannur			2200
(none)						Arabia
Temple						
(none)						
type: sanctuary						

Khirbet Sheikh Barakat			Khirbet Sheikh Barakat			2227
(none)						Syria-Coele
(none)						
Built-up area[1]	6	7	8	-	-	info: from satellite images. info: Tchalenko actually says 300 by 500 m, so 15 ha
[1] Tchalenko, 1953, 109						
Tchalenko map 1.F04 28. Temple on the hill to the east.						

Kifrin			(none)			2320
(none)						Syria-Coele
Circuit wall; Fort (auxiliary)?						
Walled area	-	9	-	-	-	src: corona - poorly done. Import excav. map, re-measure
Flooded by dam						

Kirmitli			Kirmitli			2262
(none)						Syria-Coele
Inn?						
(none)						
[1] Gerritsen et al., 2008, 257, 270						
info: 64x64 meter enclosure may be Roman station. Surface finds only islamic though. info: with only islamic finds, the 6 ha given in Yener et al. is unlikely to have represented the Roman situation. AS190						

Kiš'āle			Kish'ale			2294
(none)						Syria-Coele
(none)						
Built-up area	2	3	5	-	-	src: corona
Tchalenko 1/E-V-15						

Kseğbe			Ksejbe			2295
(none)						Syria-Coele
(none)						
Built-up area	-	1.5	2	-	-	src: corona
Tchalenko 2/E-V-25 Tate: 21 rooms						

Laodicea ad Libanum			(none)			2209
(none)						Syria-Phoenice
(none)						
Built-up area[1,2]	-	70	-	-	-	
[1] Parr, 2015 [2] Sauvaget, 1941, 43						

Laodicea ad Mare			Latakia, اللاذقيّة			2096
Stat.[1]; Coin.						Syria-Coele
Aqueduct; Arch; Circuit wall; Orthogonal street plan; Port; Theatre						
Built-up area[2]	-	170	-	-	-	Preferred.
Walled area[2]	-	220	-	-	-	
[1] Millar, 1990 [2] Sauvaget et al., 1934 [3] Todt et al., 2014, II.1429-1449						

Larissa			Shayzar			2012
Coin.						Syria-Coele
Baths[2]; Circuit wall?[3]; Industry; Theatre?[2]						
Walled area[1]	-	45	-	-	-	Preferred. Grawehr 2009:210 (24 ha tell, 45 ha fortified hellenistic/roman settlement)
[1] Grawehr et al., 2009, 210 [2] Grawehr et al., 2009, 225 [3] Grawehr et al., 2009, 222-224						

Legio			Lajjun			2071
(none)						Syria-Palestina
Amphitheatre?; Aqueduct; Bridge; Colonnaded street; Fort (legionary); Industry; Theatre?; Water management structure						
Built-up area	5	15	25	-	-	Area of Kefar Othnai, Rough estimate based on area around Megiddo Prison. Suggested location Kefar Othnai after Y. Tepper 2006
Built-up area	-	30	-	-	-	Preferred. Civilian settlement + military base, for mapping purposes
Walled area	-	65	100	300	-	Rough estimate for Maximianopolis: Maximum from Broshi 1979 (cit. Gichon). Estimate after modern size of Kibbutz Megiddo
Walled area	13	15	20	-	-	Size for the military base. Depending on extension towards northeast, either

						around 12.5 or 20 hectares. (Tepper et al. 2017, 99)

Leuke Kome	Al Wajh	2158
(none)		Arabia
Port		
(none)		
[1] Nappo, 2010		
Location uncertain. Either at al-Wajh or at Aynuna. [See Nappo 2010]		

Maaga	Mhajjah, محجه	2254
(none)		Arabia
(none)		
(none)		

Madaba	Madaba	2037
Coin.[1]		Arabia
Baths?; Circuit wall?; Colonnaded street; Temple?; Water management structure		
(none)		
[1] Jones, 1971, 294 [2] Stern et al., 1993, 993		
excavators: M. Piccirillo, T. Harrison, G. Bisheh info: Settlement since Early Bronze Age I. Substantial Iron Age II urban centre (13-16 ha). Late Hellenistic (2nd or early 1st c. BCE) structures directly over Iron II deposits. (Harrison 2007). Especially known for its 6th century mosaics, including of course the Madaba map.		

Mafsheta	Fassuta	2170
(none)		Syria-Phoenice
(none)		
(none)		

Magdala	(none)	2115
(none)		Syria-Palestina
Aqueduct[4]; Baths[13]; Horrea; Industry; Nymphaeum; Orthogonal street plan; Port; Public square; Tabernae; Temple; Water management structure		

Built-up area[2,14]	9	10	-	-	250	Preferred. De Luca: "[...] at times stretched over an area of at least ten hectares." But considering gradual abandonment northern sector after the Second Revolt, could be smaller.
Built-up area[1,15]	4.1	5	6	250	350	
Built-up area[1,15]	0.4	0.5	1	350	-	

[1] Bonnie, 2014, 180
[2] De Luca et al., 2014, 299
[3] De Luca et al., 2014, 128, 142-147
[4] De Luca et al., 2015, 299-300, 305
[5] De Luca et al., 2015, 302
[6] De Luca et al., 2015, 306, 308-310
[7] De Luca et al., 2015, 305, 320
[8] De Luca et al., 2015, 304, 308, 325-326
[9] De Luca et al., 2015, 312-318
[10] De Luca et al., 2015, 305
[11] De Luca et al., 2015, 324-325
[12] De Luca et al., 2015, 303
[13] De Luca et al., 2015, 319-324
[14] Leibner, 2009, 275
[15] Leibner, 2009, 234-235

(Former?) toparchy capital, even after foundation Tiberias. Parts of city (north) progressively abandoned from end first to later second century CE. Signs of damage from both revolts (De Luca and Lena 2015: 328)

Magdolos	Tell el-Heir	2105
(none)		Aegyptus
(none)		

Built-up area[1]	-	80	-	-	-	Preferred. NEAEHL 1394-5

[1] Stern et al., 1993, 1394-1395

Maglula	(none)	2347
(none)		Syria-Phoenice
(none)		
(none)		

Maiumas	Binyamina, Kefar Shuni, Shuni	2216
(none)		Syria-Palestina
Aqueduct; Baths[3]; Temple?; Theatre[2,3]		
(none)		
[1] Henderson, 1992, 24 [2] Henderson, 1992, 24, 26 [3] Stern et al., 1993, 1382-1384		
excavator: E. Shenhav. Not to be confused with the Maiumas near Gaza.		

Mampsis	ממשית	2126
(none)		Arabia
Circuit wall		

Built-up area	4.2	4.2	5	1	275	Preferred. Negev 1988: Middle Nabatean (1st c. CE) somewhat larger than later walled area.
Walled area[1]	-	4.17	-	275	-	

[1] Negev, 1988, 4

Marathos	Amrit	2218
Coin.		Syria-Phoenice
Port; Stadium; Temple		
(none)		

Mariamme	Mariamin, Marimeen, مريمين	2098
(none)		Syria-Phoenice
(none)		
(none)		
Dussaud 1897, 314-317: at village Mariamin, not Krak des Chevaliers or Safita. Jones 234-235: Had been city in territory Arados before Alexander (Arr. Anab. 2.13.8).		

Mayamas	Mayamas, ميامـاس	2143
(none)		Arabia
Temple		
(none)		
[1] Segal, 2013, 218		

Maʿaramāyā	Ma'aramaya	2308
(none)		Syria-Coele
(none)		

Built-up area	-	0.8	1	-	-	src: corona

Tchalenko 2/D-V-26 Tate: 1 room

Melah	Melah, ملح	2246
(none)		Arabia
(none)		
(none)		

Meleagrum	Ceylanlı Köyü	2215
(none)		Syria-Coele
Orthogonal street plan		

Built-up area	10	15	21	-	-	Preferred. src: Corona sattelite, 10 to 21 ha. info: (Yener) at least several hectares

[1] Yener, 2005, 42-43
Note, nearby AS273 is necropolis

Meron	Meiron	2166
(none)		Syria-Palestina
Temple		

Built-up area[1]	-	2	2	-	-	Preferred.

[1] Frankel, 2001, 38, nr. 305
[2] Meyers et al., 1978

Meroth						(none)	2160
(none)							Syria-Palestina
(none)							
Built-up area[1]	0.4	3	5	-	-	Preferred.	
[1] Stern et al., 1993, 1029-1031							

Mezad Thamar						(none)	2322
(none)							Arabia
Fort (legionary)							
(none)							
[1] GICHON, 1976 [2] Shmueli et al., 2009							
type: late fort							

Mezad Yeroham						Mezad Yeroham, מזד ירוחם	2125
(none)							Arabia
(none)							
Built-up area[1]	-	5	10	-	300	Preferred. NEAEHL: Smaller than Byzantine size	
Built-up area[1]	-	10	-	300	-	Byzantine size	
[1] Stern et al., 1993, 1135-1145							
Not in Pleiades							

Mo'a						(none)	2196
(none)							Arabia
Inn							
(none)							
info: station?							

Mogiza						Ma'az, Me'ez, Meez, ماعز	2229
(none)							Syria-Coele
Inn; Temple; Water management structure							
Built-up area	3	3	11	-	-	src: corona issue: rather dispersed village, open spaces	
[1] Ball, 2000, 219 [2] Tchalenko, 1953, 280-281 [3] Tchalenko, 1953, 280							
Tchalenko 2/D-VI-16							

Mothana						Imtan, امتان	2247
(none)							Arabia
Fort (auxiliary)							
(none)							
[1] Jones, 1971, 293							
Village in territory of Bostra. Auxiliary troops stationed here							

Muğleyya						Mugleyya	2275
(none)							Syria-Coele
(none)							
Built-up area	4.6	4.8	5.2	-	-	src: corona	
Tchalenko 3/C-XI-16 Tate: 11 rooms							

Narbata						(none)	2339
(none)							Syria-Palestina
(none)							
(none)							

'Naxouana'						(none)	2014
(none)							null
(none)							
(none)							

Neapolis						Nablus	2062
Stat.; Coin.							Syria-Palestina
Amphitheatre[1]; Aqueduct[1]; Circus[1]; Colonnaded street; Temple; Theatre[1]							
Walled area	-	100	-	-	-	Preferred. NEAEHL 1355	
[1] Stern et al., 1993, 488-490							

Neeila						Inkhil, إنخل	2243
(none)							Arabia
(none)							
(none)							
info: Metrokomia							

Negla						Nejel, نجل	2202
(none)							Arabia
(none)							
(none)							

Nessana						Nitzana	2122
(none)							Arabia
Inn; Temple							
Built-up area[1,2]	-	17	-	-	-	Preferred.	
[1] Negev, 1988, 2 [2] Sartre, 2001							

Neue						Nawa, نوى	2016
(none)							Arabia
(none)							
(none)							
[1] Sartre, 1999, 218							
Later episcopal see							

Nicephorium						Raqqa	2052
Coin.[1]							Osrhoena
(none)							
Walled area	78	78	-	600	-	De Jong 2011:268	
[1] Cohen, 2006, 78							

Nihata						(none)	2208
(none)							Syria-Phoenice
(none)							
(none)							
info: (millar 1990) In territory Berytus.							

Nisibis						Nusaybin	2106
Stat.[1]							Mesopotamia
Aqueduct?; Bridge; Circuit wall; Fort (legionary); Temple							
Walled area[2]	80	110	150	-	350	After interpreted Corona/aerial photography in Palermo 2014	
[1] Millar, 1990 [2] Palermo, 2014 [3] Palermo, 2014, 463							
Partially covered by modern Nusaybin, partially by minefield in border zone Turkey - Syria. (Palermo 2014)							

Nūrīye						Nuriye	2319
(none)							Syria-Coele
(none)							
Built-up area	0.2	0.35	0.4	-	-	src: sat	
Tchalenko 2/D-V-31 Tate: 2 rooms							

Oboda						Avdat	2124
(none)							Arabia
Temple							
Built-up area[1]	-	8.5	-	-	-	Preferred.	
[1] Negev, 1988, 2 [2] Negev, 1997, 24-38, 38-60 [3] Stern et al., 1993, 1155							

Orela						Al Jnenih, Junnein, الجنينة	2245
(none)							Arabia
(none)							
(none)							

Orthosia						(none)	2082
Coin.							Syria-Phoenice
(none)							
(none)							

Ostrakine			Tell Athar el-Filusiyyat			2111
(none)						Aegyptus
(none)						
Built-up area[1]	-	200	-	-	-	Preferred.
[1] Stern et al., 1993, 1171-1173						
Pliny NH 5.14.68: This is where Arabia begins						

Ourima			Horum Höyuk			2045
Coin.						Syria-Coele
(none)						
(none)						

Pagrae			(none)			2214
(none)						Syria-Coele
(none)						
Built-up area[1]	-	4.5	-	-	-	Preferred.
[1] Yener, 2005, AS248						

Palmyra			Tadmur			2090
Stat.[1]						Syria-Phoenice
Aqueduct; Arch; Baths[7]; Bouleuterion?; Circuit wall[12]; Colonnaded street; Fort (legionary); Nymphaeum; Orthogonal street plan; Public square; Public square (agora); Temple; Theatre[5,7]						
Walled area	-	120	-	-	-	Preferred. Dentzer 2010: Diocletian wall. Sommer 2005: Walled area suggested to be smaller than the city had been at its height in the second and third centuries.
[1] Millar, 1990 [2] Richard, 2012, 273 [3] Richardson, 2002, 50 [4] Richardson, 2002, 51 [5] Sear, 2006, 321-322 [6] Sommer, 2005, 147-148 [7] Sommer, 2005, 143 [8] Sommer, 2005, 142-143 [9] Sommer, 2005, 140, 143, 145, 146 [10] Sommer, 2005, 142, note 11 [11] Sommer, 2005, 144-145 [12] Sommer, 2005, 148						

Paltos			(none)			2021
Coin.[1]						Syria-Phoenice
(none)						
(none)						
[1] Jones, 1971, 263						

Pegai			(none)			2006
Coin.						Syria-Palestina
Odeum/Odeion; Tabernae						
Built-up area	6.6	6.6	12	-9	66	NEAEHL: two thirds of mound (=10ha) in Herodian period, until first revolt.
Built-up area	10	10	-	193	-	Preferred. NEAEHL 71: City regains size of Middle Bronze Age II settlement (around 10 ha). Also, at least 10 hectares after 363CE earthquake
[1] Finlayson, 2012 [2] Stern et al., 1993, 70						

Pella Dekapoleos			Tabaqat Fahl			2072
Coin.						Syria-Palestina
Baths[2]; Nymphaeum; Odeum/Odeion; Temple						
Walled area	-	10	-	-	-	Preferred. From map in Houston and Day 1989:3.
[1] Sear, 2006, 313 [2] Stern et al., 1993, 1174-1180						

Pelusium			Tell el-Faramah			2107
(none)						Aegyptus
(none)						
Walled area[1]	-	130	-	-	-	Preferred. Issue: add source for new research at 130 ha.
[1] Stern et al., 1993, 1394						

Petra			(none)			2076
Stat.; Coin.						Arabia
Aqueduct[1,7]; Arch; Baths[14]; Bouleuterion?; Circuit wall; Colonnaded street; Nymphaeum; Palace; Palace?; Residences; Tabernae; Temple; Theatre[2,15]; Water management structure						
Walled area	67	70	73	-	-	Preferred. Guzzo and Schneider 2002, from map, within 'outer wall'.
[1] Bedal, 2004, 94-97 [2] Finlayson, 2012 [3] Kanellopoulos, 2001, 13 [4] Kanellopoulos, 2001, 11 [5] Kanellopoulos, 2001, 11-12, 13-16 [6] Kolb, 2007 [7] Oleson, 2007 [8] Richard, 2012, 275 [9] Richardson, 2002, 76 [10] Richardson, 2002, 68, 70 [11] Richardson, 2002, 62 [12] Richardson, 2002, 72 [13] Richardson, 2002, 71-72 [14] Richardson, 2002, 75 [15] Sear, 2006, 314 [16] Stern et al., 1993, 1181-1193						

Phaine			El Mismiyeh			2026
(none)						Arabia
Temple						
(none)						
[1] Segal, 2013						
info: Metrokomia						

Phaino			Khirbet Faynan			2198
(none)						Arabia
Aqueduct; Industry; Water management structure						
Built-up area	-	15	-	-	-	src: Novo et al
[1] Barker et al., 2000 [2] Barker et al., 2007 [3] Hunt et al., 2007 [4] Kafafi, 2014 [5] Mattingly et al., 2007						
info: imperial estate info: copper mining region since chalcolitic info: not to be confused with Phaina in Trachonitis						

Phasaelis			(none)			2181
(none)						Syria-Palestina
Aqueduct						
(none)						

Philadelpheia			Amman			2033
Coin.						Arabia
Aqueduct; Circuit wall[7]; Colonnaded street; Nymphaeum; Odeum/Odeion; Orthogonal street plan; Public square (agora); Theatre[2,4]						
Built-up area	28	27.6	46	-	-	Preferred. NEAEHL 1251; cf. Lichtenberger 2003:247: 46ha between tower and necropoleis.
[1] Bonnie, 2014, 223 [2] Finlayson, 2012, 312 [3] Hoffmann et al., 2002, 88-97 [4] Sear, 2006, 315 [5] Sear, 2006, 315-316 [6] Segal, 1997 [7] Stern et al., 1993, 1243-1252						

Philippopolis			Shahba			2129
Stat.						Arabia
Aqueduct[3]; Arch; Baths[3]; Circuit wall[3]; Cisterns; Nymphaeum; Odeum/Odeion; Orthogonal street plan; Residences; Tabernae; Temple; Theatre[3]						
Built-up area[1]	-	10	-	100	244	Preferred.
Walled area[2,4]	-	98.9	100	244	-	[Dentzer 2010]
[1] Darrous et al., 2004, 18 [2] Darrous et al., 2004, 21 [3] Darrous et al., 2004 [4] Sartre, 2001						

Philoteria			(none)			2130
(none)						Syria-Palestina
Aqueduct; Baths						
Built-up area[1,2]	20	20	25	-	-	Preferred. 25 ha tell size
[1] Lapin, 2001 [2] Stern et al., 1993, 255						

Porphyreon Polis			Jijeh, Jiyeh			2114
(none)						Syria-Phoenice
(none)						
Built-up area[1]	-	7.7	7.7	-	-	Preferred.
[1] Gwiazda, 2014, 34						

Qasrawet			(none)			2176
(none)						Aegyptus
Temple						
Built-up area[1,2]	20	25	30	-	-	Preferred.
[1] Oren, 1982 [2] Stern et al., 1993, 1213-1218						
info: (NEAHL 1396) at qatya oasis. Location not quite clear in Oren info: mostly public buildings and graves, few domestic units						

Qaṣr Iblīsū			Qasr Iblisu			2304
(none)						Syria-Coele
(none)						
Built-up area	-	3	-	-	-	src: corona
Tchalenko 2/D-V-13						

Qatura			Fatūrah, Qatura, قتورة			2231
(none)						Syria-Coele
(none)						
Built-up area[1]	-	5	-	-	-	
[1] Tchalenko, 1953, 189						

Qazion			(none)			2159
(none)						Syria-Palestina
Temple						
(none)						
Rural cult-site						

Qerqanyā			Kourkanya, قورقنيا			2292
(none)						Syria-Coele
(none)						
Built-up area	-	6.8	8	-	-	src: corona
Tchalenko 2/D-VI-19						

Qirqbīze			Qirqbize			2287
(none)						Syria-Coele
(none)						
Built-up area	-	1	1	-	-	
Tchalenko 2/D-VI-1 Tate: 9 rooms						

Raphaneae			(none)			2100
Coin.[1]						Syria-Phoenice
Fort (legionary)						
Walled area	-	60	-	-	-	Preferred. Gschwind 2009:251
[1] [src]						

main info: gschwind 2009; gschwind 2014 location checked with Corona Dussaud 1897: 15 minutes from Barin (Mons Ferrandus, crusader castle)

Raphia			(none)			2063
Coin.						Syria-Palestina
(none)						
Built-up area	-	12	-	-	-	Preferred. Broshi 1979 (cit. E. Oren)

Rbeiʿa			(none)			2276
(none)						Syria-Coele
(none)						
Built-up area	-	1.2	-	-	-	src: corona
Tchalenko 3/D-XI-12 Tate: 12 rooms						

Rdeimeh ash-Sharqiyyeh			Rdeimeh ash-Sharqiyyeh, Rdemet ash Sharqiyah			2249
(none)						Arabia
(none)						
(none)						

Refade			(none)			2234
(none)						Syria-Coele
(none)						
Built-up area	3.5	4.2	4.2	-	-	src: corona, sat
Tchalenko map 1/F-IV-17 info: not to be confused with Fidra or Fedra, village 1.5 km further west (DARE:43275) info: Tchalenko vol 2 Pl. LXIII Tate: 20 rooms						

Regia			(none)			2331
(none)						Syria-Coele
(none)						
(none)						

Rehovot			Khirbet Ruheibe, Rehovot, Rehovot-on-the-Negev			2121
(none)						Arabia
Baths[3]; Temple; Water management structure						
Built-up area[1,2,3]	-	10.3	12.1	-	-	Preferred.
Built-up area[3]	10	12.1	12.1	300	500	
[1] Negev, 1988, 2 [2] Sartre, 2001 [3] Stern et al., 1993, 1275 [4] Stern et al., 1993, 1276						

Resafa			(none)			2324
(none)						Syria-Coele
(none)						
(none)						

Resaina			Ras al-Ayn, رأس العين			2053
Stat.[1]; Coin.						Osrhoena
(none)						
Built-up area	-	100	-	-	-	Preferred. issue: Poor estimate and presumably very late. From Pollard 2000:274 (referring to Von Oppenheim, early 20th c. 'ruins over one hundred hectares')
[1] Millar, 1990						

Rhinocolura			El-Arish			2173
(none)						Aegyptus
(none)						
Built-up area[1]	-	10	-	400	-	
[1] Stern et al., 1993, 1396						

Ruweiha			Rouweiha, Ruweiha			2221
(none)						Syria-Coele
(none)						
Built-up area	7	8	10	-	-	src: corona
Double entry in pleiades, see also 668355. Tchalenko map 3.E10 Tate: 114 rooms around 250 CE						

Sabra			Wadi Sabra			2131
(none)						Arabia
Aqueduct; Odeum/Odeion; Temple						
(none)						
[1] Richardson, 2002, 64 [2] Sear, 2006, 314						

Sadaqa			As Sadaqa, الصدقة			2192
(none)						Arabia
(none)						
(none)						

Saḥr			Sahr, Saḥr			2137
(none)						Arabia
Odeum/Odeion; Temple						
Built-up area[1]	-	11.9	-	-	-	Preferred.
[1] Kalos, 1997, 186 [2] Kalos, 1997 [3] Kalos, 1997, 976-977						
Regional sanctuary, but likely no permanent habitation						

Sakkaia			Shaqqa, شقا			2141
(none)						Arabia
Temple; Theatre?						
(none)						
[1] Segal, 2013						

Sauara			As Sawara Al Kubra, الصورة الكبرى			2138
(none)						Arabia
(none)						
(none)						
Metrokomia						

Saura			Sur al Laja, صور			2147
(none)						Arabia
Odeum/Odeion; Temple						
(none)						
[1] Segal, 2013, 180-181						
info: Metrokomia						

Scythopolis			Baysan, Beit She'an, בֵּית שְׁאָן			2073
Coin.						Syria-Palestina
Amphitheatre[3]; Aqueduct; Basilica; Baths[8]; Bridge; Circuit wall[11]; Circus[6]; Colonnaded street; Nymphaeum; Odeum/Odeion; Portico; Public square; Public square?; Public square (agora); Tabernae; Temple; Theatre[8]						
Built-up area	70	80	80	-	300	Preferred. Tsafrir 1997:94
Built-up area	-	130	130	400	700	NEAEHL 223
Walled area	-	150	-	-	-	Tsafrir and Foerster 2002:85
[1] Richard, 2012, 279 [2] Stern et al., 1993, 227-230 [3] Tate, 1997, 99 [4] Tsafrir et al., 1994, 99-100 [5] Tsafrir et al., 1994 [6] Tsafrir et al., 1997, 99 [7] Tsafrir et al., 1997, 92, 96 [8] Tsafrir et al., 1997, 89 [9] Tsafrir et al., 1997, 96, 122-123 [10] Tsafrir et al., 1997, 89, 96 [11] Tsafrir et al., 1997, 101-102 [12] Tsafrir et al., 1997						

Sebaste			Sabastiya, سبسطية			2064
Stat.[1]; Coin.[2]						Syria-Palestina
Aqueduct; Basilica; Circuit wall; Circus; Colonnaded street; Orthogonal street plan; Public square (forum); Temple; Theatre						
Walled area	-	64	-	-	-	Preferred. Sartre 2001
[1] Millar, 1990 [2] Stern et al., 1993 [3] Stern et al., 1993, 1300-1310						

Seia			Sīʿ			2151
(none)						Arabia
Odeum/Odeion; Temple						
(none)						
[1] Segal, 2013, 206-213						
Sanctuary with small agricultural village						

Selaima			Slim, سليم			2149
(none)						Arabia
Temple						
(none)						
[1] Segal, 2013, 191-195						

Seleucia Pieria			(none)			2095
Coin.						Syria-Coele
Aqueduct; Circuit wall[3]; Colonnaded street; Fort (legionary); Horrea; Port; Public square (agora); Residences; Temple; Theatre[3]; Water management structure						
Built-up area	-	130	-	-	-	Preferred. Upper town is heavily sloped, effectively only a quarter of which can be considered buildable.
Walled area[1]	240	250	310	-	-	Pamir 2005:74: "Over 300 ha" On basis of georeferenced maps from Pamir 2005 and Pamir 2014: Lower town 88 ha, upper town less clear, but 160 ha seems to be the limit.
[1] Pamir, 2005, 74 [2] Pamir, 2014, 189 [3] Pamir, 2014 [4] Pamir, 2014, 181 [5] Pamir, 2014, 187 [6] Todt et al., 2014, II.1716						

Seremym			Sarmin, سرمين			2222
(none)						Syria-Coele
(none)						
(none)						
[1] Todt et al., 2014, 1722-1723						

Serğible			Sergible, Serjible			2310
(none)						Syria-Coele
(none)						
Built-up area	-	2	3	-	-	src: sat
Tchalenko 1/E-V-6 Tate: 18 rooms						

Sergilla			Sergilla, Serğilla			2210
(none)						Syria-Coele
Baths[2]						
Built-up area[1]	-	7	-	-	-	Preferred.
[1] Abdulkarim et al., 2009 [2] Ball, 2000, 219						

Seriane			Isriye			2349
(none)						Syria-Coele
(none)						
(none)						
[1] Konrad, 2001, 150						

Sermada			Sarmadā, Sermada, سرمدا			2235
(none)						Syria-Coele
(none)						
Built-up area	-	12	12	-	-	src: corona issue: 1969 size, inhabited

Sharah			El Sharayah, Sharah, الشرائع			2136
(none)						Arabia
Baths[1]; Circuit wall; Temple						
Walled area	-	17	-	1	-	Preferred. src: Bruant 2010; 1st century
[1] Fournet, 2008 [2] Kalos, 2001						

Shimron			(none)			2169
(none)						Syria-Palestina
(none)						
(none)						

Sidon			Saïda, صيدا			2084
Stat.; Coin.						Syria-Phoenice
Port; Theatre						
(none)						

Sile			Tell Abu Seifa, Tell Abu Seifeh			2185
(none)						Aegyptus
(none)						
Walled area[1]	-	20	-	-	-	Preferred.
[1] Stern et al., 1993						

Singara			Sindjar, Sinjar, شنگال			2109
Stat.						Mesopotamia
Circuit wall; Fort (legionary)						
Walled area[2]	18	20	22	-	363	Preferred.
[1] Isaac, 1990, 42 [2] Oates, 1968, 98, Fig. 8 [3] Pollard, 2000, 274-275 [4] ILS 9477						
Initial situation unclear. Possible location of pre-existing settlement upon instalment fortress. Grows into sizeable fortress city in later centuries.						

Sinḥār			Sinhar			2285
(none)						Syria-Coele
(none)						
Built-up area	-	3	4	-	-	src: corona
Tchalenko 1/G-IV-21 Tate: 20 rooms						

Sinsarah			Khirbet Ḥās, Šinšarāḥ			2274
(none)						Syria-Coele
Temple						
Built-up area	5	5.5	6	-	-	src: corona sat
[1] Tchalenko, 1953, 15						
Tchalenko 3/C-XI-22 Tate: 55 rooms						

Sitt er Rum			Set al-Roum, Sitt er Rum			2233
(none)						Syria-Coele
(none)						
Built-up area	0.5	1	1.3	-	-	
Tchalenko map 1/F-IV-18 Plan LXIII						

Smeid			Smeid, صميد			2252
(none)						Arabia
(none)						
(none)						

Sobata			Shivta			2123
(none)						Arabia

Aqueduct?; Industry						
Built-up area[1]	-	8	-	-	-	Preferred.
[1] Negev, 1988, 2						

Soudanon			(none)			2127
(none)						Arabia
(none)						
Built-up area[1]	-	2.5	-	300	-	Negev 1988: late Roman
[1] Negev, 1988, 2						

Srir			(none)			2230
(none)						Syria-Coele
Temple						
Built-up area	0	0.5	1	-	-	src: corona issue: only a temple, really
[1] Ball, 2000, 219 [2] Tchalenko, 1953, 14						
High place temple, several nearby villages (incl. Aqibrin, 1 km to north)						

Sura			al-Surīyya			2323
(none)						Syria-Coele
Fort (legionary)						
Walled area	-	75	-	300	540	From sat/corona. Compare Poidebard and Kennedy, Desert Frontier. Pollard (296) mentions an area of 40 hectares, but even the western section alone is 50 hectares. Remains suggested to be Justinianic.
Walled area	20	23	25	-	300	Preferred. From sat/corona. Compare Poidebard and Kennedy, Desert Frontier. As indicated by Ali Othman 2016, northeastern section, bound by adobe wall, contains Roman period, while walled southeastern area is "Byzantine"
[1] Pollard, 2000, 295						
Likely no status as city.						

Surqanīyā			Surqniya			2313
(none)						Syria-Coele
(none)						
Built-up area	1	1	1.5	-	-	src: sat/corona
Tchalenko 1/F-IV-16 Tate: 10 rooms						

Susiya			Susya			2119
(none)						Syria-Palestina
Baths; Temple						
Built-up area	-	6	-	-	-	Preferred.

Sykomazon			Deir al Balah, Khirbet Suq Mazen			2120
(none)						Syria-Palestina
Industry						
Built-up area[1]	-	10	-	-	-	Preferred.
[1] Stern et al., 1993, 1396						

Taqle			Ṭaqle			2311
(none)						Syria-Coele
(none)						

Built-up area	-	1.9	2.2	-	src: corona
Tchalenko 1/F-IV-15 Tate: 10 rooms					

Telanissos			Deir Seman, Deir Sim'ān, دير سمعان			2238
(none)						Syria-Coele
(none)						
Built-up area[1]	7	9	9	-	-	src: corona
[1] Tchalenko, 1953, Plan CXXXII						
Only rises to prominence as a pilgrimage site with foundation of St. Simeon's sanctuary						

Tell al-Far			Tell al-Far			2266
(none)						Syria-Coele
(none)						
Built-up area[1]	-	5	-	-	-	
[1] Yener, 2005, AS 110						
AS110, 5ha info: possibly abandoned with expanding marshes/lake.						

Tell al-Terzi			Tell al-Terzi, Terzihüyük			2265
(none)						Syria-Coele
(none)						
Built-up area[1]	-	5	-	-	-	
[1] Yener, 2005, AS 104						
AS104						

Tell Amarna			(none)			2326
(none)						Syria-Coele
(none)						
Built-up area[1]	-	6	-	-	-	
[1] Wilkinson et al., 2007, 188-9						

Tell Aqibrin			Tal Alkarama, Tell Aqibrin, تل الكرامة			2237
(none)						Syria-Coele
(none)						
Built-up area[1]	-	4	4.5	-	-	src: corona
[1] Tchalenko, 1953, Pl. XLVI						
See Tchalenko Pl. XLVI						

Tell Hasanušağı			Tell Hasanušağı, Yerkuyu, Yurt Höyük			2264
(none)						Syria-Coele
(none)						
Built-up area[1]	-	7	-	-	-	
[1] Yener, 2005, AS 99						
AS 99						

Tell Mastepe			Tell Mastepe			2267
(none)						Syria-Coele
(none)						
Built-up area[1]	-	6.24	-	-	-	
[1] Yener, 2005, AS 156						
AS156						

Tell Sultan			Tell Sultan			2259
(none)						Syria-Coele
(none)						
Built-up area[1,2]	-	9	12.2	-	-	9 hectares size of tell from Corona, rather than 12+ from AVRP
[1] Gerritsen et al., 2008 [2] Yener, 2005, AS 32						
AS 32						

Tell Tītā			Talteta, Tell Tita, تلتيتا			2301
(none)						Syria-Coele
(none)						
Built-up area	2	3.5	6	-	-	src: corona
Tchalenko 2/C-VI-33						

Thala			Horvat Tila, Tel Halif			2133
(none)						Syria-Palestina
(none)						
Built-up area[1]	-	8	-	-	-	Preferred.
[1] Stern et al., 1993, 1474						

Thamara			'En Hazeva			2195
(none)						Arabia
Fort (legionary)						
(none)						

Thamna			(none)			2206
(none)						Syria-Palestina
(none)						
(none)						

Tharba			Taraba, Ṭayyibeh, طربا			2250
(none)						Arabia
(none)						
(none)						

Thoana			Khirbet at-Tuwanah			2172
(none)						Arabia
(none)						
Built-up area[1]	-	36	36	-	-	Preferred.
[1] Kennedy, 2004, 167-168						

Thospia			(none)			2022
(none)						null
(none)						
(none)						

Thurae			Kilis			2330
(none)						Syria-Coele
(none)						
(none)						
tabpeut: Thvrae						

Tiberias			Tiberias			2075
Stat.; Coin.						Syria-Palestina
Aqueduct; Baths; Baths?; Bouleuterion; Circuit wall; Circus[1]; Industry; Market; Temple; Theatre						
Built-up area	30	37.1	92	-	-	Preferred. Lapin 2001: 88. Including Hammath Tiberias (Dauphin as basis). Referring as well to Hirschfeld 1993 (92ha, Byzantine), NEAEHL (Vitto: 'Roman city' around 30 ha); Dothan 1983: 14ha for Hammath Tiberias. Dauphin 1998 30ha for Tiberias, 7.1 ha for Hammath Tiberias and Meyers 1997, possibly first century, 80ha.
Walled area	-	74	-	400	700	NEAEHL
[1] Jos. BJ 2.21.6						

Tigranakert			(none)			2023
(none)						null
Circuit wall						
Walled area	-	50	-	-	-	Preferred. Unreliable source: tigranakert.am; maps lacking scale.

Tigranocerta			(none)			2024
(none)						null

(none)	
(none)	

Timna	(none)	2187
(none)		Arabia
Industry?; Temple?		
(none)		

Tripolis	Tripoli	2085
Coin.		Syria-Phoenice
Aqueduct[1]; Baths[1]; Port		
(none)		
[1] Malalas 18.367 [2] Carayon, 2012		

Tyrus	Ṣūr, صور	2086
Stat.[4]; Coin.		Syria-Phoenice
Aqueduct[5]; Arch; Baths; Circus; Colonnaded street; Gymnasium?; Orthogonal street plan; Port; Theatre?		

Built-up area	-	58	-	-	-	Preferred. Katzenstein 1987

[1] Gatier et al., 2010
[2] Gatier et al., 2011
[3] Maïla-Afeiche et al., 2012
[4] Millar, 1990
[5] Toubekis, 2015

Udruh	Udruh, أذرح	2190
(none)		Arabia
(none)		
(none)		

Umm az Zaytūn	Umm az Zaytun, Umm az Zaytūn, أم الزيتون	2148
(none)		Arabia
Temple		
(none)		

Umm el-Jimal	Umm el-Jimal, أم الجمال	2113
(none)		Arabia
Temple		

Built-up area[1]	-	30	-	300	-	
Built-up area	12	13	14	-	300	Preferred. From map Kennedy

[1] Kennedy, 2007, 111
[2] Segal, 2013, 226-227
[3] Vries et al., 1998

info: location is that of ER-LR village. Later walled town obviously slightly to northwest

Umtaiyye	Il-Umta'iyeh, المتاعية	2171
(none)		Arabia
Temple		
(none)		
[1] Segal, 2013, 226		

Uyts	(none)	2025
(none)		null
Circuit wall		

Walled area	-	4.8	-	-	-	Preferred. From map Kroll 2012:222

Waqim	Waqim, وقم	2251
(none)		Arabia
(none)		
(none)		

Zenobia	(none)	2345
(none)		Syria-Coele
(none)		
(none)		

Zeugma	(none)	2048
Coin.		Syria-Coele
Bridge; Circuit wall?; Fort (legionary); Theatre?		

Walled area	-	140	-	-	-	Preferred. Aylward 2013:13

Ziph	(none)	2337
(none)		Syria-Palestina
(none)		
(none)		

Zoara	Gawr as-Safi, غور الصافي	2197
(none)		Arabia
(none)		
(none)		

Zorava	Ezrāʿ	2145
(none)		Arabia
(none)		
(none)		
info: Metrokomia		

ʿAynuna	(none)	2203
(none)		Arabia
(none)		
(none)		
[1] Nappo, 2010		

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Nederlandse samenvatting

Stedelijke systemen in het Romeinse Nabije Oosten: Historische en functionele dimensies van stedelijkheid in Romeins Syrië, Mesopotamië, Palestina en Arabië.

Dit proefschrift heeft twee doelen. In de eerste plaats poogt het een reconstructie te maken van het stedelijke systeem, of systemen, in het Romeinse Nabije Oosten, in de tweede en vroege derde eeuw na Christus. Dit gebied omvat zes provincies, Syria Coele, Syria Phoenice, Syria Palaestina, Osrhoene, Mesopotamia en Arabia, wat overeenkomt met delen van modern Turkije, Syrië, Libanon, Israël en Jordanië, en kleine delen van Irak en Saudi Arabië.

Ten tweede worden verschillende regionale patronen in deze systemen geanalyseerd. In de eerste plaats vanuit de ogenschijnlijk simpele vraag waarom de regionale systemen in dit gebied er zo uitzagen als ze deden. Waarom waren bijvoorbeeld sommige gebieden dicht bezaaid met veel kleine steden, terwijl in een andere provincie alleen een handjevol grote steden te vinden waren? Zien we hier alleen de invloed van geografie? Is hier het effect te zien van historische ontwikkelingen over langere tijd, van gebeurtenissen en beslissingen lang voordat het gebied ingelijfd werd in het Romeinse Rijk? Of zien we hier het resultaat van economische integratie, samenvallend met de politieke integratie onder Romeins gezag?

In de eerste twee hoofdstukken is uiteengezet hoe de stedelijke systemen er in het noorden en zuiden van het Romeinse Nabije Oosten eruitzagen. In het derde hoofdstuk is geanalyseerd in hoeverre de verdeling van steden, en de groottes daarvan, samenhangt met de productiviteit van het land in stedelijke territoria. In het vierde hoofdstuk is in detail gekeken naar de grootste stad in de regio, Antiochië.

Uit het onderzoek is gebleken dat geografische factoren en historische ontwikkelingen op lange termijn zeker van groot belang waren in de vorm van stedelijke netwerken in deze regio. Hoewel we duidelijke bevolkingsgroei zien ten opzichte van voorgaande periodes, blijken Romeinse steden in het Nabije Oosten over het algemeen alsnog niet bijzonder groot, en konden de meesten gevoed worden met agrarische productie vanuit hun directe achterland, een handjevol uitzonderingen daargelaten. Vanuit dat perspectief is er geen reden om uit te gaan dat deel worden van het Romeinse Rijk sterkere economische integratie met zich meebracht.

About the author

Paul Kloeg (Delfgauw, 1987) studied half a year of Aerospace Engineering at TU Delft before switching to History at Leiden University in 2009. In 2012 he obtained his BA in History summa cum laude with a thesis titled ‘Puteoli and Ostia. Economic aspects of Roman port cities’. He continued in Leiden with a master in Ancient History, this time writing about the population and economy of second century Antioch, and obtained his degree in 2013.

That same year he started to work on his PhD in Leiden, within the framework of the ERC-funded project, ‘An Empire of 2000 Cities’, which allowed him to continue research in the fields of urbanism, economy and demography, and eventually resulted in the thesis you see before you.

While continuing to work on his thesis in his spare time, Paul stepped out of academia in 2018. He started as a GIS operator at Stedin, and went on to work as Head of Data Management at Vermeulen Groep from 2019 to 2022. Since 2023 he has been working as Head of Data Management at the Leiden University Libraries, managing the Open Access and Metadata Specialist clusters.