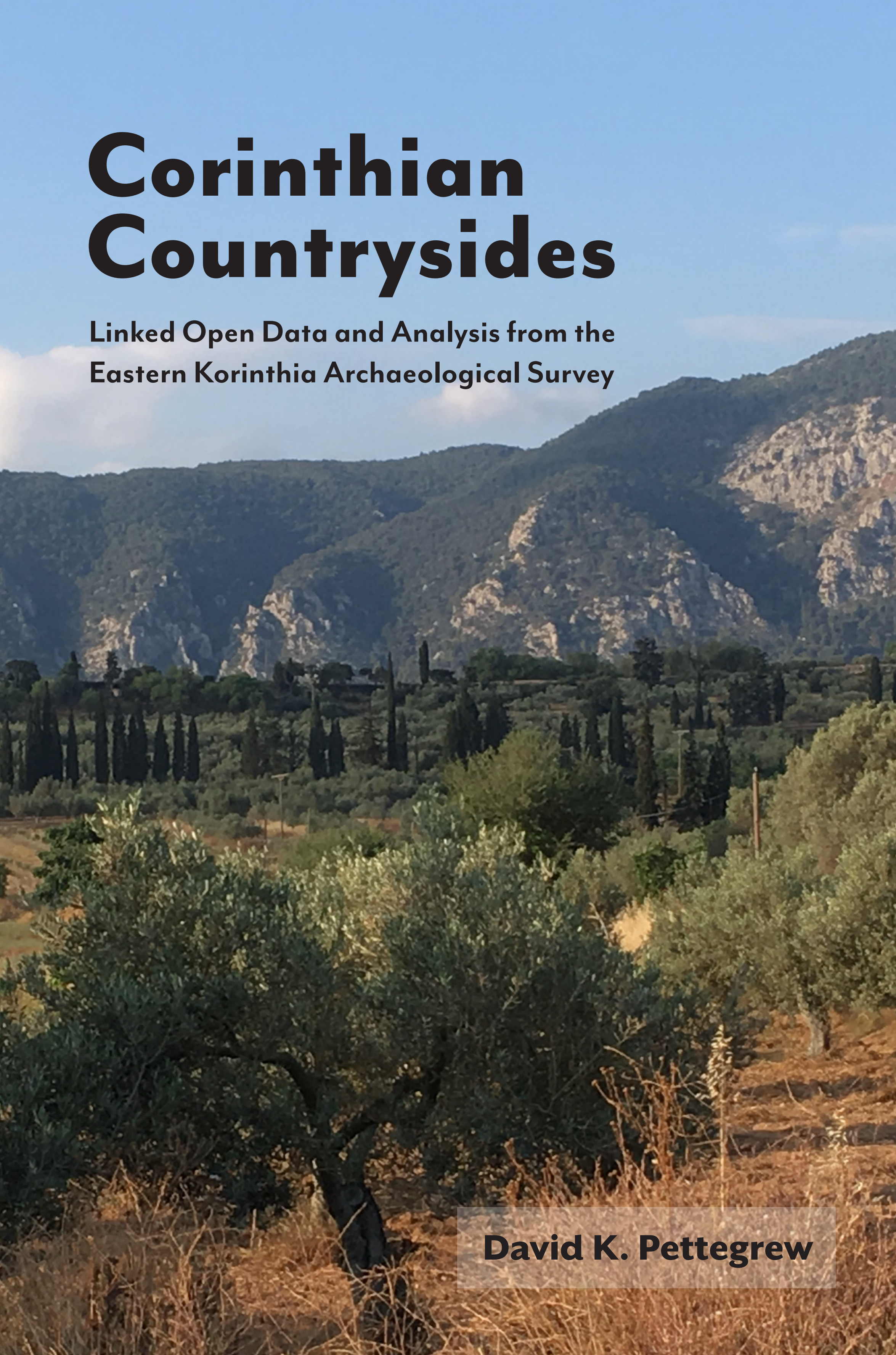
Corinthian Countrysides

Linked Open Data and Analysis from the Eastern Korinthia Archaeological Survey



David K. Pettegrew

Corinthian Countrysides

Linked Open Data and Analysis from the Eastern Korinthia Archaeological Survey

2024 The Digital Press @ The University of North Dakota

Published in collaboration
with the American School of Classical Studies at Athens

Library of Congress Control Number: 2024944115

ISBN-13: 979-8-9891912-3-9 (print)
ISBN-13: 979-8-9891912-2-2 (Ebook/PDF)

To download a fully linked PDF copy of this book for free go here: https://doi.org/10.31356/dpb026

Corinthian Countrysides

Linked Open Data and Analysis from the Eastern Korinthia Archaeological Survey

David K. Pettegrew

The Digital Press at the
University of North Dakota
Grand Forks, ND

For
Timothy E. Gregory
Daniel J. Pullen
and
Thomas F. Tartaron

who modeled
collaborative research and open,
shared, and
accessible publication.

Contents

Preface

Two decades have passed since American archaeological field teams completed their survey of the eastern territory of Corinth. Between 1997 and 2003, well over one hundred archaeologists, historians, geomorphologists, and student volunteers collected cultural and environmental data in the Eastern Korinthia Archaeological Survey, a project carried out under the aegis of the American School of Classical Studies at Athens. As the first large-scale, intensive survey of the Isthmus and Corinth's southeastern territory beyond Mt. Oneion, EKAS promised to make significant contributions to Corinthian studies and the broader scholarship of Mediterranean landscape archaeology. The documentation of the immediate territory of a major city of classical antiquity was then relatively unique compared to the more common practice of investigating rural and remote regions of small Greek *poleis*. The project's adoption of artifact-level survey, geomorphological assessments, geographic information systems, and database applications also made it an especially intensive multi-disciplinary regional survey in its day.

A formal and comprehensive publication was scheduled to appear in the years following fieldwork, but the project's discoveries entangled its discoverers in exciting new trajectories of research that deferred analysis and publication of the parent project. A fulsome, multi-authored report on the project's methods came out in *Hesperia* in 2006 hinting at future sequels. A series of individual articles and books offered new methodological perspectives and discrete interpretations of particular sites or periods. The idea of a more comprehensive publication resurfaced again in 2015 and gained traction as we approached the twenty-year anniversary of the start of the survey. A plan was devised in 2018 with the support of the co-directors (Timothy Gregory and Daniel Pullen), field director (Thomas Tartaron), and other participants (Bill Caraher, Dimitri Nakassis, Richard Rothaus, and Lita Tzortzopoulou-Gregory) to publish the project's datasets alongside a formal documentation and analysis.

This digital monograph, which outlines the datasets and analyses of this intensive survey of the eastern territory of Ancient Corinth, marks one outcome of that plan. I have written this book first and foremost as a public-facing presentation and analysis of the distributional survey and its open published datasets. Although I had initially intended to present a fine-tuned period-by-period interpretation of finds of the eastern Corinthia, the time-consuming process of refining datasets, along with the difficulties I encountered in initial efforts to synthesize the abundant and complex archaeological and historical evidence for the modern era, gave me pause. I reconceived a less ambitious project to finish in time for the twenty-year anniversary of the project's completion and to set aside—as a future opportunity—the entangling work of writing social and cultural history for different periods and aspects of the Corinthian past. I have not imagined this work, then, as *the final* synthetic interpretation of our investigations of the eastern Corinthia, let alone a study of best practices and methods in survey today, but more like a "critical edition" of a recently discovered primary text that has potential to expand Corinthian history in new ways.

In that respect, this book concerns itself with characterizing newly published legacy data from a major regional survey at the heartland of Greece and the processes and documentation that have made that data findable, accessible, interoperable, and reusable. In as much as the work offers a comprehensive presentation of the project's methods, frameworks, and results, it does so to encourage other readers to understand the published datasets and carry out their own studies of topics and periods that interest them—in short, to experiment, tinker, and play with open data as a process of making meaning about the Greek countryside. This incremental, processual, and iterative approach to building knowledge and interpretations about Corinth's territory from large datasets comprises a kind of "slow archaeology," as it were (Caraher 2016, Huggett 2022), which sees the interpretive process of reflection on and engagement with data as an ongoing one.

In putting together this comprehensive study of the project and its datasets, I must acknowledge at the outset the collective labor, creativity, and knowledge of the individuals who have made the work possible. First and foremost, I thank the project's generous directors—Timothy E. Gregory (director), Daniel J. Pullen (director), and

Thomas Tartaron (field director)—who envisioned and implemented this regional study of the famed Corinthian Isthmus and the eastern Corinthia more broadly over a run of multiple seasons. The directors created a capacious framework for investigating the region, spearheaded the operation from planning to completion, wrote grants to fund the work, and sustained the project through a series of administrative and logistical challenges. Significantly, they created access to findings, research, and publication opportunities for junior scholars, which disseminated the results of this survey. I am ever grateful for their encouragement and support in pursuing this study. I especially want to recognize Daniel Pullen who so frequently shared background information and knowledge, photographs, and documents from his collections as I moved this study forward over the last three years.

EKAS involved a good many other archaeologists, technologists, specialists, and students who laid the groundwork for every phase of this work more than two decades ago. Notably, Richard Rothaus and Lee Anderson created the digital framework of databases and GIS tables (Ch. 7 and Appendix II) that are central to the linked open data and to this book. Bill Caraher, Lita Tzortzopoulou-Gregory, Timothy Gregory, Sarah James, and Dimitri Nakassis opened my eyes to the Corinthian countryside and its analysis through collaboration and common conversation. Countless professionals and students, friends and collaborators put boots on the ground, walked fields, led teams, read pottery, digitized maps, studied soils, and recorded tidal notches: their contribution was always incremental and hard-earned under a baking summer sun and in stuffy workrooms at Isthmia and Ancient Corinth, but their collective work led to radically new views of the region. I have sought to capture their presence, contribution, and collaboration through this work's photographs, including those that close the preface.

I want also to acknowledge those Corinthian residents who supported the work of EKAS in a myriad of ways. Thanks to friends in the Greek archaeological service, especially Panayiota Kasimi (current director of the Ephorate of Antiquities of Corinth) and Konstantina Skarmoutsou (late director of the 25th Ephoreia of Byzantine and Post-Byzantine Antiquities), who patiently worked with EKAS teams to implement the terms of the permit granted from the Hellenic Ministry of Culture during the survey. Thanks also to our hosts in the village of Ancient Corinth, home base during the project, for supporting and provisioning the material needs of a sizable group of American archaeologists over multiple years. The Marinos family who operate Rooms

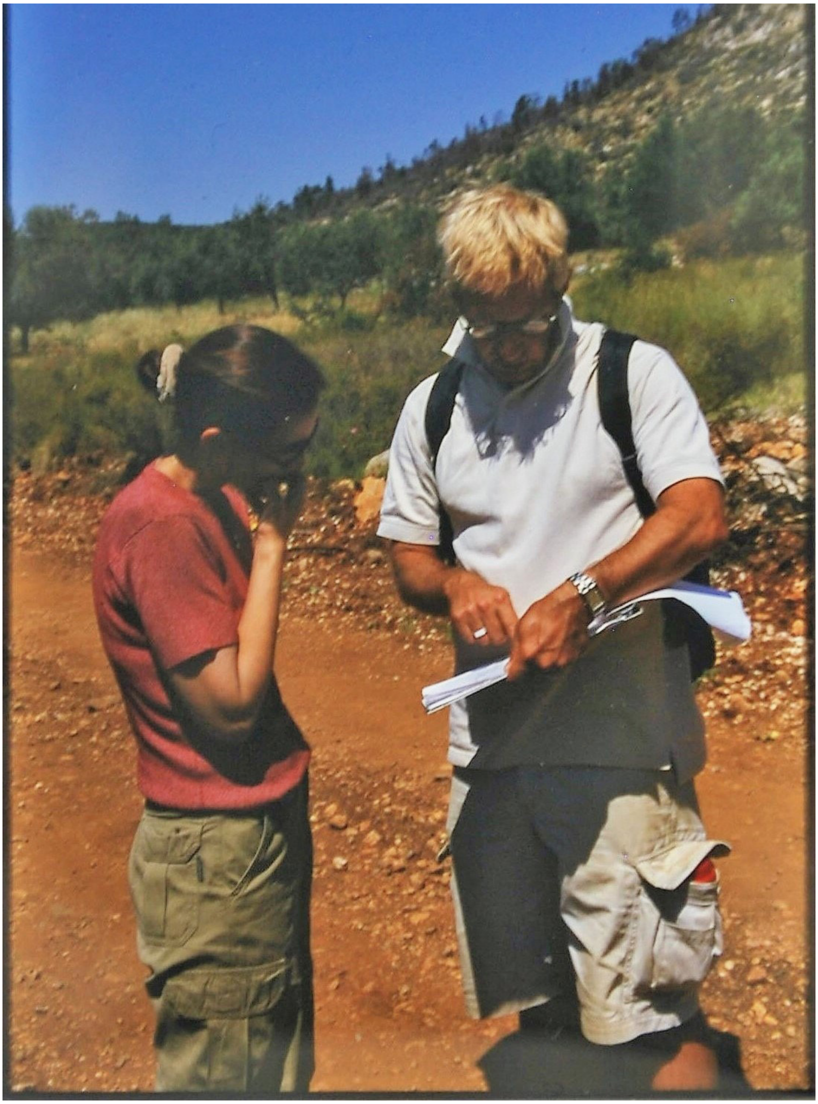
Marinos on the eastern end of the village was a constant source of care and support; they lodged, fed, and delighted teams year after year as they shared their wit, humor, and charm. The late Spyros and Elisabetta are deeply missed today but their humor and kind hospitality live on in their children Vasilis and Chryssa. In the plateia, the late Athanasios Gemelos and his nephew Nikos Gdysis provided food, drink, friendship, and laughs to so many EKAS staff over the years; their care continues in their Pegasus Rooms run by Nikos, Marina, and family. Thanks, finally, to the many Corinthians we met in the survey of the countryside and interviews in the villages of Examilia, Xylokeriza, Kyras Vrysi, Kechries, and Sophiko, who opened the region to us in a wide range of ways: raising questions, curiosities, advice, and knowledge, and treating us with hospitality, kindness, and friendship as we worked to learn about the history of their land.

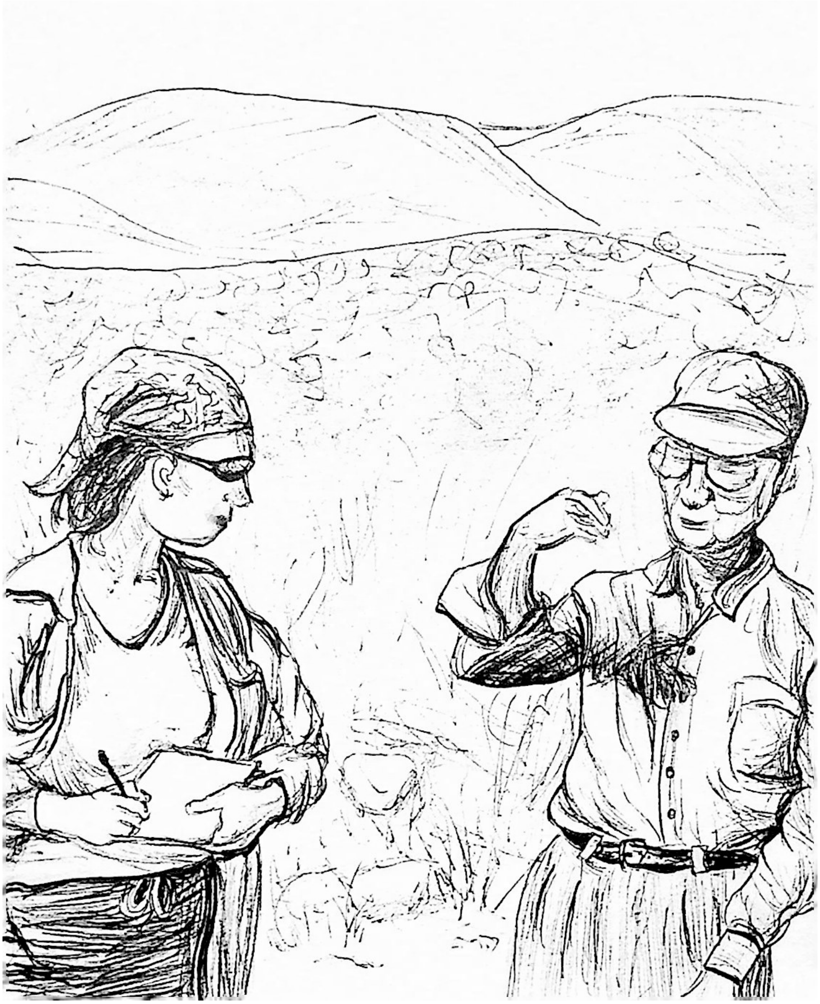
Our common work in the eastern Corinthia over the years was made possible through the help of generous funding institutions. On behalf of the directors and the full EKAS team, I wish to acknowledge the American School of Classical Studies at Athens as well as the funding organizations that supported the work from 1999-2003: The Ohio State University Excavations at Isthmia, Institute for Aegean Prehistory, the National Geographic Society, the Foundation for Exploration and Research on Cultural Origins, the National Science Foundation, and the Alexander S. Onassis Public Benefit Foundation Fellowship, Yale University, Florida State University, Oregon State University, St. Cloud State University, LaTrobe University, Cornell University, Bryn Mawr College, and the University of Texas at Austin. Messiah University and Harrisburg University of Science and Technology funded more recent study seasons, including drone surveys of the EKAS territory (2017, 2018, and 2023). The publication of this book and online datasets materialized through the generous support of Messiah University, which granted me a sabbatical leave in the fall of 2020, and Harvard University Press's Loeb Classical Library Foundation, which funded a second semester of research and writing in 2021. The datasets and this digital book would never have seen the light of day without that year of preparation, analysis, and writing.

I want to end this preface by acknowledging those friends, colleagues, and associates who supported this linked open digital publication in different ways over the last three years. At an early stage of planning, John Bintliff and Jon Frey kindly wrote letters of support for this publication project. Bill Caraher, director of The Digital Press at the University of North Dakota, worked with me over a three-year period to develop a plan that would make this study more dynamic than a mundane archaeological report; my regular conversations with him significantly improved the quality and value of this work. Eric Kansa and Sarah Kansa of Open Context also provided regular support and advice in establishing relational datasets; thanks to them for fielding my endless questions about hyperlinks, metadata, and data structures. Jon Frey, director of the Michigan State University Excavations at Isthmia, and Lita Tzortzopoulou-Gregory, assistant director of that project, kindly offered help and advice related to the materials of the Eastern Korinthia Survey. Bill Caraher, Daniel Pullen, Thomas Tartaron, Alex Knodell, Emily Hartman, Eric Kansa, and two anonymous reviewers gave valuable feedback on drafts of the manuscript that made the ultimate version a sharper and cleaner one. Daniel Pullen, Richard Rothaus, Jon Frey, and Lita Tzortzopoulou-Gregory shared photographs from their own collections. Thanks to Rachel Dougherty for illustrating the book's cover page and insets of each chapter based on original photographs, and to Alexandra Shehigian for checking hyperlinks and proofreading the manuscript at page-proof stage. I wish to acknowledge other new collaborators in Corinthian studies who have helped to connect EKAS with fresh initiatives in the study of the modern period in the region: Hannah Lents for georeferencing 1940s aerial photographs, Albert Sarvis for collecting high-resolution drone images of the region and building a new geospatial framework, Kostis Kourelis and Nikolaos Poulopoulos for inspiring new research in the colony of Washingtonia and early modern landscapes of the Isthmus, and Corinthian historian Anastasios Tsingkos for rich conversation, correspondence, and a tour of the district of Examilia.

Finally, and most importantly, I acknowledge my family—my companions who accompanied me daily in the long process of preparing, writing, and revising. During the pandemic years marked by so much unpredictability, Kate, James, Marjie, and Cassian brought encouragement, perspective, laughter, and joy as we bunkered down and rode out a storm of uncertainty and change until we arrived at the morrow with its brighter horizons.


RACE
FOR
THE
CURE





Chapter 1: Introduction

This linked open digital monograph describes the datasets, analysis, and results of a large-scale intensive survey in the eastern territory of the city of Corinth between 1997 and 2003. Carried out under a permit of the Greek Ministry of Culture granted through the American School of Classical Studies at Athens, the project focused primarily on the Isthmus west of the Corinth Canal,[1] a busy, connected transport corridor and densely settled area from prehistory to the present day, but also sampled parts of the mountainous and coastal districts of the southeast Corinthia (Figure 1.1).[2] Across this vast survey territory of the eastern Corinthia, researchers used varied methods to collect a range of data about artifacts, features, and environment. EKAS generated a rich body of evidence for habitation and land use covering all periods of human history and documented a materially abundant and varied landscape with few parallels in Greece or the Aegean basin.

This digital book offers the first comprehensive overview of the project, its datasets, distributions, and outcomes since the completion of the primary phase of fieldwork in 2003. In one respect, the work constitutes a structured description of the EKAS project and first-level analysis of the primary locations, assemblages, and spatial patterns in the landscape. This meets the need for a comprehensive publication of the project that will allow those interested in the history of the northeast Peloponnese or the archaeology of Greece generally to form an impression of the survey's main findings. The work complements, extends, and updates the assessment of survey results published in the methodology report in *Hesperia* in 2006 without repeating all that that seminal article had to say. While that earlier report remains valuable for its thorough discussion of methodology and its integrative case study of the district of Kromna,[3] this book presents a retrospective overview of the project's longer-term outcomes and possibilities that were not yet

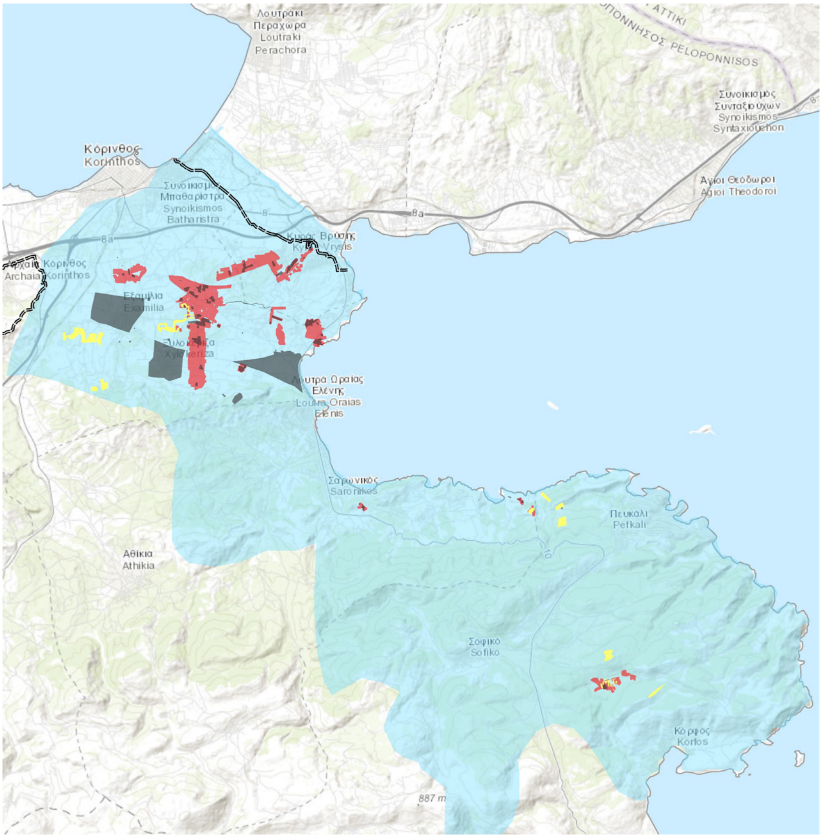


Figure 1.1. Topographic map showing survey territory (light blue), intensive survey units (red), extensive units (yellow), and LOCAs (dark gray) against modern settlements and roads. The survey territory's northern terminus is the Corinth Canal. The Classical walls of Ancient Corinth (upper left) and the late antique and Byzantine Hexamilion wall (upper center) are shown to orient the reader to familiar landmarks in Corinthian topography.

obvious in the initial assessment, and makes a variety of original observations about the Corinthian countryside and archaeological survey in the process.

In another respect, this book marks a new sort of archaeological publication, a linked open digital handbook that presents the archaeology comprehensively and introduces the reader to the range of primary archaeological data. From beginning to end, the work encourages readers to think holistically and critically about survey data sets in terms of the particular histories and contexts that produced them and guides the analyst to pay attention to the character of archaeological information for reuse. In its attention to online datasets and contexts, the book creates the foundation for others to reuse and redeploy the EKAS datasets for their own purposes. The focus of this book on project datasets contributes to a growing scholarship calling for higher standards in publishing findable, accessible, interoperable, and reusable high-quality archaeological research data with clear and thorough documentation.[4] It also contributes one more collection to a small but growing corpus of published Mediterranean distributional survey datasets,[5] another step toward a deferred scholarly goal of comparing survey data from different regions (cf. Sections 10.1 and 10.2).[6]

I have conceived this publication of archaeological context, digital datasets, and analysis much like the work of a philologist who aims to produce a new critical edition of a recently discovered primary text. That work requires a process of, variously, sourcing, contextualizing, characterizing, describing, translating, dating, correcting, and commenting on the text so that others may read, understand, and deploy the text for different ends. Publishing data of an archaeological survey is similar in that it also demands establishing the description, translation, and analysis to render the source understandable, reliable, and reusable. Publication of a survey and its datasets ought to encourage critical thinking about the character, chronology, contexts, conditions, and contingencies that have created and shaped archaeological information.[7] A thorough documentation of the archaeological process enables other scholars to make major discoveries about the significance of datasets years, decades, or even generations later.

While my primary aims of this work, then, are to establish archaeological datasets and a first-level overview and analysis, a secondary goal is to provide a case study of data-centered distributional approaches in Greek regional survey that have become common in recent decades. Most students of Mediterranean archaeology today generally have at least a basic knowledge of the concepts, practices, and analytical frameworks of regional archaeological survey thanks to translational work that has made survey understandable to wider audiences.[8] But many are still more likely to think of regional survey as a method primarily directed to defining rural "sites" through the collation of evidence of different types such as the record of abandoned architecture, surface artifact concentrations, and textual accounts. This view of Greek survey—as an enterprise to name and map the dominant material signatures in a landscape—stretches back to the topographic tradition of the nineteenth and early twentieth centuries, and it remains popular today as an integrative endeavor directed to locating, defining, and mapping farms, villas, hamlets, and other sites in the landscape.[9]

An important alternate approach to survey and the analysis of landscapes breaks the landscape down into its constituent elements in order to reconstruct it in different ways. This approach directs distributional methods—called, variously, "distributional," "siteless," "non-site," or "off-site"— to characterize a fuller range of cultural material of human activity beyond the "site," the dominant and most visible nodes of material culture.[10] Recording the distribution of artifacts, buildings, routes and pathways, and environmental features and agents across a region, these modes of survey read against the grain of topographies of place to deconstruct and layer regions and their networks according to a range of analytical criteria.[11] Significantly, the advent of computing-centered archaeological practices in landscape studies in recent decades—in GIS systems, databases, and digital recording, for example—has given archaeologists new tools to study the relational fragments of the culturally layered landscape.[12] Distributional survey, then, coupled with data-intensive processes, allows and invites disintegrative analyses that break down landscapes into their atomic elements as part of a process of rebuilding, reconstructing, and ultimately reintegrating chronology, features, environments, places, and their relationships. This shift in the way that archaeologists interpret and publish landscapes, from identifying and defining sites during fieldwork to fragmenting, finetuning, and relayering complex sets of entangled information during post-processing, marks a change in practice and conception of survey that may be unfamiliar to archaeology students and wider readers.[13]

This work uses the EKAS project as a case study of distributional survey that breaks down and analyzes landscapes through their relational layers. Because the project straddled the divide between these two kinds of approaches—adopting distributional survey methods and environmental studies with databases and GIS, on the one hand, and discerning and defining sites in a more traditional way, on the other—the publication of the project affords the opportunity to reflect on the relative difficulties and values of visioning the territory through different lenses. By making use of the computational tools of relational databases and GIS, the EKAS project adopted a data-centered approach that has encouraged unraveling static representations of the region and teasing out the dynamic histories and networks of habitation, fortification, agriculture, and land use. Multi-modal methods and digital frameworks create opportunities to reread Corinthian landscapes by disentangling complex palimpsests and constructing the dominant sets of spatial relationships between features and sites over time.

I have scaffolded this presentation of EKAS's history, methods, data, and interpretation so as to provide a comprehensive description of the project and to introduce the newer paradigms of survey and the processes often discussed in critical survey literature in the twenty-first century—particularly distributional methods, digital and data-centered approaches, and the interpretive challenges of constructing meaning from survey evidence.[14] The work shows how disentangling and layering survey datasets according to its basic elements allow the analyst to characterize the interactions of the countryside beyond simply putting site dots on the map.[15]

1.1. How to Read and Use a Linked Open Digital Publication[16]

As a free, downloadable, digital-first publication, this book and its online datasets mark a new way of publishing Mediterranean fieldwork that is accessible to wider audiences.[17] The book describes how EKAS originated and developed, the sort of record it made of the landscape, and the most important matters to consider in its datasets, assemblages, distributions, and analyses. The accompanying data published at Open Context makes available thousands of files,[18] including survey data tables (.csv), media files (.jpeg and .tiff), documents (.pdf), and geospatial shapefiles. The hyperlinked text of the e-book leads to that data and invites readers to explore images, artifact drawings, original reports, and data tables. I include images in the book mainly to showcase the collaborative work of volunteers and professionals who studied the eastern Corinthia, the kinds of landscapes they encountered, and the sorts of things they recorded.

This digital publication is accessible in three formats—print monograph, hyperlinked digital book, and online data collections—which may be explored separately or together. The digital book itself invites engagement in a variety of ways, as a traditional book to read from beginning to end, a hyperlinked text for going deep and wide, or as a handbook searchable for specific information. I'll spell this out in more concrete terms by imagining how three groups of readers might interact with this text and its accompanying datasets.

1.2. Greek Landscape Archaeology, and an Outline of this Book (for the general reader)

Some readers who access this book will be primarily interested in Mediterranean archaeology, the changing nature of landscape studies in Greece, and data-driven approaches to publishing a critical edition of a survey. You may approach this book in a general way to learn about new trends in high-resolution distributional survey in one of the historically richest regions of Greek history. As a monograph released in print edition and digital book form, it offers a coherent overview of the project and archaeological data from background to interpretation.

Collectively, the chapters of the monograph establish the EKAS project, its datasets, and analysis of the assemblages and distributions of artifacts and features. The first part of the book describes the project background in order to make clear the character, contexts, and methods behind the discoveries and data. I begin by sketching historical paradigms of survey in the Corinthia to contextualize the methodological, pragmatic, and intellectual energies behind EKAS and the forms of investigation the project adopted (Ch. 2). Chapter 3 offers an overview of the history of the project that draws attention to how our collaborative effort to survey the territory encountered the contingent realities of permit restrictions, personnel shortages, and the high-density layers of artifacts in the region, all of which necessarily affected the character of the data. Chapter 4 comprises a bibliographic summary of the survey project's research outcomes over the last two decades while outlining major findings to date and underscoring the intellectual merits of a layered approach. In Chapter 5, I describe the methodological frameworks of distributional survey, documentation, and recording that have affected the character of data produced, including its chronological resolution. Chapter 6 describes and annotates another kind of dataset—defined sites (LOCAs) in the survey territory—and draws attention to the discrepant process of defining sites in continuous carpets.

The second part of the book outlines the character and condition of the datasets of the project and documents the processes for their reuse. Chapter 7 details the types of datasets and the steps I took to make data findable, accessible, interoperable, and reusable. Chapter 8 documents pathways for exploring and reusing data published at Open Context. These two chapters can be read alongside two appendices at the end of the book that provide more detailed description and hyperlinks of the project documents (Appendix I) and data fields (Appendix II).

The third part of the book outlines several important higher-order issues of analysis and source criticism—conditions and contingencies beyond archaeological practice alone. Chapter 9 offers a critical discussion of the results of experiments conducted by EKAS, the meaning of artifact counts, and terms of analysis (zones, units, and densities) that are valuable for any analysis that bundles or layers. Chapter 10 reflects on the patterns of total artifact densities in survey units and zones of the territory and the different pathways for mapping the intensity of habitation across the countryside in the long term. Chapter 11 and Chapter 12 characterize the artifact assemblages in the broadest terms according to five broad analytical periods—Prehistoric, Protogeometric–Hellenistic, Roman, Medieval, and Modern—and consider what we can learn about the Corinthian countryside in broader chronological aggregations.[19] Chapter 13, conversely, breaks down chronological distribution through finer-grained analysis, using, as a case study, the Roman analytical period. The final chapter (Ch. 14) concludes the work by exploring different ways that distributional survey can prompt broader integrative interpretation.

Although someone with an interest in Greek landscape archaeology may drop into any part of the book, the chapters collectively establish a critical edition of EKAS data giving the analyst what is needed to put data to use.

1.3. A Hyperlinked Digital Book (for students of Corinthian and Peloponnesian history)

I have imagined that a second group of users accessing this text will be interested in understanding the archaeology of the Corinthia and the northeast Peloponnese, and how the EKAS project sheds light on the history of the region or a particular period, place, or district. You will want to take advantage of its form as a digital linked open publication.

All parts of the book shed light in their own way on the archaeology of the Corinthian countryside through the narrative overview, compilations of data, and corpus of photographs and illustrations. Yet, some chapters will prove especially valuable for the student of Corinthian archaeology. Look firstly to the opening chapters that lay out the history of survey in the region (Ch. 2 and Ch. 3) and then turn to the project's outcomes (Ch. 4), distributional and chronological overviews (Ch. 10, Ch. 11, Ch. 12, Ch. 13), and conclusion (Ch. 14). The documents and publications of the Eastern Korinthia Archaeological Survey listed in Appendix I create launching boards for further exploration. You will benefit most by accessing the text in its interactive e-book form, downloadable at The Digital Press at the University of North Dakota, because the PDF format allows keyword searching for specific places of interest.

I have not written this book primarily as an integrative history of social, economic, and cultural aspects of Corinthian rural archaeology, but as an efficient overview, description, and analysis that creates a foundation for others to work toward that end. Anyone who has ever written a synthetic regional history know how demanding that work is—even more so for a territory as well discussed and traversed as the Corinthia. The enterprise requires wrestling with varied corpuses of difficult, often conflicting, archaeological, textual, ethnographic, cartographic, and environmental evidence to interpret a changing landscape from one century to another. My colleagues and I have done this work of heavy lifting for certain periods of the Corinthian past in other articles and books (Ch. 4, Appendix I), and we will continue to carry out such studies through analysis and synthesis around specific topics and periods (cf. Ch. 14).

While I have consciously decided to focus on description and analysis over broader synthetic interpretations, the book still offers a variety of new observations about the eastern Corinthia that have not been made elsewhere. From start to finish, the entire work highlights something exceptional about the Corinthia in comparison with other regions: the intensity of its connections and diachronic occupation that changed from one period to another. The picture of the eastern Corinthia that emerges in this study in fact mirrors the format of this book: linked, open, highly clustered, and intensively interactive. In the final chapter, I will draw together twenty-five years of fieldwork and study to consider what we have learned and can learn about elements of settlement and connectivity in this Greek heartland. Of course, I hope that the open publication of data, description of its character, and consideration of its potential will encourage you to forge pathways through evidence and build social and economic histories of underexplored periods, data sets, and relationships.

The student of Corinthian archaeology should follow hyperlinks in this book to internal and external sites.[20] Links present opportunities to go beneath the surface, browse or explore the source data, and learn more about a period, place, or collection of objects and sites. Internal links create ease of access for cross-referencing chapters, sections, tables, definitions, and figures; hyperlinks to database fields, for example, connect with field definitions and descriptions in Appendix II. External links lead to external sites, especially project-specific data at

Open Context where one can browse all items associated, for example, with the *Early Roman* period, or all artifacts, photographs, and drawings associated with a certain survey unit, zone, or toponym. To aid in navigating the online data, I have put together a brief guide to reusing and analyzing information (Ch. 8) and a complete concordance of links to data associated with the major fields of the data tables published online (Appendix II).

The following describes some of the different ways I have embedded hyperlinks to access external content. These links provide different ways of understanding terminology and bundling datasets according to time, place, and method.

> **Ancient Authors and Texts:** Hyperlinks to ancient authors and their texts go to online encyclopedias (e.g., World History Encyclopedia) and translations of texts, typically at the Perseus Digital Library. Links to authors and their writing offer more context about the individuals under discussion and direct access to the texts in translation and in original languages.
>
> **Periods.** Depending on the particular context, hyperlinks to periods will pull up online survey data associated with objects of those periods at Open Context. By following links to data or period definitions, the user may access records associated with the project's specific chronological parameters. Because periodization is always fuzzy (cf. Section 8.5.2 and Section 11.1), it's worth noting specifically how I use terms in this book and what data those links query at Open Context.

- *Generic Uses:* I'll often refer to periods in a generic way such as, for example, "medieval" or "early modern." Consider this generic use of the term "Roman" in Chapter 2: "Salvage archaeology and various kinds of survey in more recent decades have revealed smaller sites such as Roman farms, villas, cemeteries, and early Christian basilicas." I have not hyperlinked generic uses of period terms and have used lower case or upper case according to standard naming conventions.

- *Chronotype Periods:* Especially in Chapters 11, 12, and 13, I will refer to and hyperlink chronotype periods that the project adopted to classify artifacts. Wherever you see italicized and hyperlinked period names, these indicate project-specific chronotype periods. Examples, among many, include: *Early Roman*, *Middle Roman*, *Late Roman*, *Roman*, and *Late Helladic IIIA*.[21] These project-specific periods present the reader with the opportunity to expore linked artifact data. Clicking on those period names will take you to all the project data associated with those chronotype periods (cf. Section 5.2.2 for an overview of chronotypes as a system of periodization, and Section 11.1 for a discussion of narrow, broad, and inclusive chronotype periods).

- *Analytical Periods.* In some cases (especially Chapters 11, 12, and 13), I'll hyperlink periods as broad analytical categories in order to connect to all data associated with the period. You will see these analytical periods as hyperlinked but unitalicized period names. The broad analytical period Roman,[22] for example, incorporates all four of the distinct chronotype periods noted above (*Early Roman*, *Middle Roman*, *Late Roman*, *Roman*). Clicking on that link will take you to an Open Context page that displays all digital items associated with Roman periods. That page offers an opportunity to explore the assemblages used by the project to describe Roman objects and features: *Early Roman*, *Middle Roman*, *Late Roman*, and *Roman*.[23]

Queries. I have hyperlinked specific queries at Open Context to create shortcuts to batched data through browsing or searching. For example, you will see options to look at all records associated with specific classes of data such as *Early Roman* Eastern Sigillata B2 sherds, echinus bowls of Classical-Hellenistic date, and Localized Cultural Anomalies.[24]

Toponyms. I have added hyperlinks for specific places and toponyms in the Corinthia and other regions to provide an easy point of reference for locating places. Toponymic links typically connect to online metadata and definitions of place-name entries at Pleiades or GeoNames.

Archaeological Units. I have hyperlinked different kinds of archaeological units so that you can see at Open Context all online data associated with specific spaces noted in the text, including different kinds of survey units, geomorphic units, localized cultural anomalies (LOCAs), and zones. Follow the links to archaeological units to quickly learn about the relative location of units and associated objects and conditions.

Documents and Publications. I have included hyperlinks to published and unpublished documents of the project that provide information about features in the landscape, end-of-season reports of field teams, and unpublished conference presentations. A full list of these reports, with links, is available in Appendix I.

Following the links in many of the categories above will also take the user to the objects associated with the survey, including photographs and illustrations of survey units and finds. Read in this way, the hyperlinked book creates various possibilities for exploring datasets that enhance discussions in the text.

1.4. Online Data Collections (for specialists in survey archaeology)

A third group—specialists in survey archaeology—will want to reuse data for their own purposes. You may want to approach the book's chapters as a guide to understanding and analyzing the data. This group should pay close attention to my discussion of project history (Ch. 3) and methods and parameters (Ch. 5) to learn around the context of data. But you should especially read the chapters explaining my processes of data curation and refinement, the character of datasets (Ch. 7), pathways to reuse (Ch. 8), and field descriptions and definitions (Appendix II). Anyone who wants to carry out their own interpretations of data should also look at those chapters (Ch. 9, Ch. 10, Ch. 11, Ch. 12, and Ch. 13) that showcase source issues, tools, and factors of analysis.

If you're interested primarily in reuse, you should also go to the project page at Open Context to access the online data.[25] There, one can search data, browse records (e.g., units, finds, documents), or download data files. The Linked Media page in particular includes downloadable forms and reports, unpublished papers, and survey data tables.[26] Significantly, the datasets available for browsing, searching, and downloading at Open Context comprise nearly 100% of the field data collected during the primary years of the project (see Ch. 7). Therefore, they offer a unique opportunity to examine complex sets of information in artifact-rich environments. Chapter 8 offers a practical guide for additional aids in querying, browsing, and locating datasets, while Appendix II describes data table fields with links to associated online datasets.

1.5. Citation and Creative Commons License

The digital book may be cited like any other study:

> Pettegrew, David K. *Corinthian Countrysides: Linked Open Data and Analysis from the Eastern Korinthia Archaeological Survey*. Grand Forks: The Digital Press at the University of North Dakota, 2024.

Published datasets comprise the collaborative work of multiple scholars who originally produced and later edited the datasets to prepare them for publication. Cite the collection as a whole in this way:

> Pettegrew, David K., Timothy E. Gregory, Daniel J. Pullen, Richard Rothaus, and Thomas F. Tartaron (eds.). Released 2021. "The Eastern Korinthia Archaeological Survey." Open Context. (http://opencontext.org/projects/bc71c724-eb1e-47d6-9d45-b586ddafdcfe), ARK: https://n2t.net/ark:/28722/k25d97c30.

Cite an individual object by using the suggested citation recommendation at the page in Open Context. So, for example, this *Late Roman* African Red Slip rim may be cited as:

> Pettegrew, David K., Timothy E. Gregory, Daniel J. Pullen, Richard Rothaus, and Thomas F. Tartaron. Released 2021. "Obj 2151000006 from Greece/Corinthia/EKAS Region/Kyras Vrysi/DU 2151." In *The Eastern Korinthia Archaeological Survey*, edited by David K. Pettegrew, Timothy E. Gregory, Daniel J. Pullen, Richard Rothaus, and Thomas F. Tartaron. Open Context. (http://opencontext.org/subjects/2583dfa9-c9cf-4d3b-b67a-07aec8cd-8ecd), ARK: https://n2t.net/ark:/28722/k21v5tz3c.

01100010 01110010 01100101 01100001 01101011

In closing this chapter, I want to reiterate that my goal is not to provide a final interpretation of the EKAS project, but to establish a new critical edition of an important archaeological source for reimagining the Corinthian countryside. Written in a linked open format for academic and public audiences, this book explains the value of data-driven approaches. While the study presents a comprehensive treatment of the project's work and considers the assemblages, distributions, and features according to different scales, it makes no claim to be the final publication of the survey, let alone a full-fledged regional history of the eastern Corinthia. The book does not try to say everything, nor should it. Instead, it paves a pathway to data reuse that creates opportunity for further analysis and integrative interpretation, sheds light on recent archaeologies of the *chora* (territory) of Ancient Corinth, and reflects in a general way on the value of high-resolution approaches for finetuning historical studies of the Greek countryside.

Endnotes

1 Isthmus: https://pleiades.stoa.org/places/570317; Corinth Canal: https://pleiades.stoa.org/places/131418574

2 In this work, I use "Korinthia" when referencing the official name of the project ("Eastern Korinthia Archaeological Survey") but in all other cases, I have followed the convention of the methodology report (Tartaron et al. 2006) in adopting the standard terms "Corinth" and "Corinthia."

3 Kromna: https://www.geonames.org/12514059/kromna.html

4 Kansa, Kansa, and Arbuckle 2014; de Haas and van Leusen 2020; Strupler 2021. The principles that promote reuse are neatly summarized under the "FAIR" acronym: Findable, Accessible, Interoperable, and Reusable. The FAIR Guiding Principles were defined in 2014 by researchers at the Lorentz Workshop in Netherlands (see Wilkinson et al. 2016). In general, most Mediterranean surveys have not published any data, let alone reusable data: de Haas and van Leusen 2020, 3–4.

5 Knodell et al. 2023, 303. See the data publications of regional archaeological projects at Open Context: https://opencontext.org/. The datasets of the Pyla-Koutsopetria Archaeological Project, which followed EKAS, are now available. The directors of the Western Argolid Regional Project, another enterprise of former staff of the Eastern Korinthia Archaeological Survey, are finalizing their datasets for publication at Open Context. These three projects, which adopted similar distributional survey methods, create the possibilities for reliable comparison. I share Meyer's concern (2022, 151–152) about the challenges of comparing density data between distributional survey projects but do not think we need to reject comparison altogether. One must approach comparison critically to ensure that datasets being compared afford some kind of relation. Most of the comparisons I will make to other datasets in this work are from projects that adopted similar methods as the Eastern Korinthia Archaeological Survey.

6 Alcock and Cherry 2004; Attema et al. 2020, 42–43.

7 In another place (Pettegrew, forthcoming), I have referred to this list as the four C's of archaeological thinking (character, chronology, context, and contingency) that students of archaeology should practice in critical analysis of source material.

8 E.g., Osborne 1987; Snodgrass 1987; van Andel and Runnels 1987; Alcock 1993; Alcock and Osborne 2012.

9 Attema et al. 2020; Meyer 2022.

10 On the development of distributional approaches generally, see Thomas 1975; Foley 1981a; 1981b; Dunnell and Dancey 1983; Ebert 1992. Discussion and case studies from eastern Mediterranean lands: Cherry 1983, 394–397; Bintliff and Snodgrass 1988; Cherry 2002, 571–573; Gallant 1986; Barker and Francovich 2000; Bintliff 2000a; Bintliff et al. 2000b; Fentress 2000; Francovich and Patterson 2000; Given and Knapp 2003; Terrenato 2004; Caraher,

Nakassis, and Pettegrew 2006; Winther-Jacobsen 2010; Given et al. 2013; Caraher, Moore, and Pettegrew 2014; Bintliff et al. 2017; Gallimore et al. 2017; Meyer 2022, 145–146; Knodell et al. 2023.

11 Interest in an archaeology beyond sites has expanded in more recent years to a fuller field of landscape interaction including the living forces of human and non-human agents. See, for example, Given's work on conviviality, collaboration, and commotion: Given 2013, 2018, and 2022.

12 Barker and Francovich 2000.

13 Some forms of artifact-level survey do not reject the site but use distributional approaches to better understand archaeological settlements: Alcock 1991; Bintliff, Howard, and Snodgrass 2007; Caraher, Moore, and Pettegrew 2014; Attema et al. 2020.

14 For recent critical overviews of the history and developments of Mediterranean survey archaeology, see Attema et al. 2020 and Knodell et al. 2023, with references.

15 While I will retain the word "site" throughout this work as a convenient term to refer to a cultural place of interest associated with material remains, I will also use other analytical categories (including units and zones) to think about the distribution of cultural remains over the territory.

16 Counts et al. 2020, 7–12 have provided me with the model for this section.

17 For discussions and comparative examples, see Caraher, Moore, and Pettegrew 2014; Opitz, Mogetta, and Terrenato 2016; Opitz 2018; Counts et al. 2020; Garstki et al. 2020; Caraher 2022; Ebeling and Caraher 2022.

18 https://n2t.net/ark:/28722/k25d97c30

19 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and Moden (https://n2t.net/ark:/28722/k2g16dz03).

20 Cf. Opitz 2018, S74-S75 for the value of sparse, selective linking to aid the reader in exploration.

21 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), *Roman* (https://n2t.net/ark:/28722/k23r1944z), and *Late Helladic IIIA* (https://n2t.net/ark:/28722/k21z4n40r).

22 https://n2t.net/ark:/28722/k2b85q477

23 https://n2t.net/ark:/28722/k2b85q477

24 *Early Roman* Eastern Sigillata B2 sherds (https://n2t.net/ark:/28722/k2d79rx9q), *Classical–Hellenistic* echinus bowls (https://n2t.net/ark:/28722/k2c82r17g), and Localized Cultural Anomalies (https://n2t.net/ark:/28722/k2cg04t3q).

25 https://n2t.net/ark:/28722/k25d97c30

26 https://n2t.net/ark:/28722/k2ff43n9r

Chapter 2
Survey Backgrounds

In its primary location at a central crossroads and travel corridor in mainland Greece, the eastern Corinthia ranks among the best archaeologically-documented regions of the entire Greek peninsula. Since the late nineteenth century, archaeologists have excavated major sites such as Ancient Corinth, Korakou, Isthmia, Kenchreai, Lechaion, and the diolkos;[1] and carried out small-scale investigations at places such as Solygeia, Kromna, Perdikaria, and Gonia.[2] Scholars have documented the corridors and roads of the territory, located some of the region's major cemeteries, worked out the phases of the trans-Isthmus fortification wall and Hexamilion,[3] and debated the natural resources and economy of the region. The application of salvage archaeology and various kinds of survey in more recent decades has revealed smaller sites such as Roman farms, villas, cemeteries, and early Christian basilicas. Newer investigations have challenged older views of the Corinthia as an unpopulated region characterized only by a few larger nucleated sites and landscape features.[4]

This chapter provides a background to the remainder of the study in two ways. First, I outline the history of archaeological investigations in the eastern Corinthia and the major sites and toponyms of the region. This will serve to create familiarity with the principal places, features, settlements, and landforms that appear later in the work, and to characterize the richness of cultural material in the landscape investigated by EKAS. Second, I offer an overview of changing methodological and interpretive frameworks in the archaeologies of the Corinthian landscape over the last several hundred years in order to explain some of the key influences on the Eastern Korinthia Archaeological Survey, especially in respect to earlier excavations at Isthmia and regional survey in Greece. Each new phase marks an improvement in layering our views of the region and its important places and sets the groundwork for the

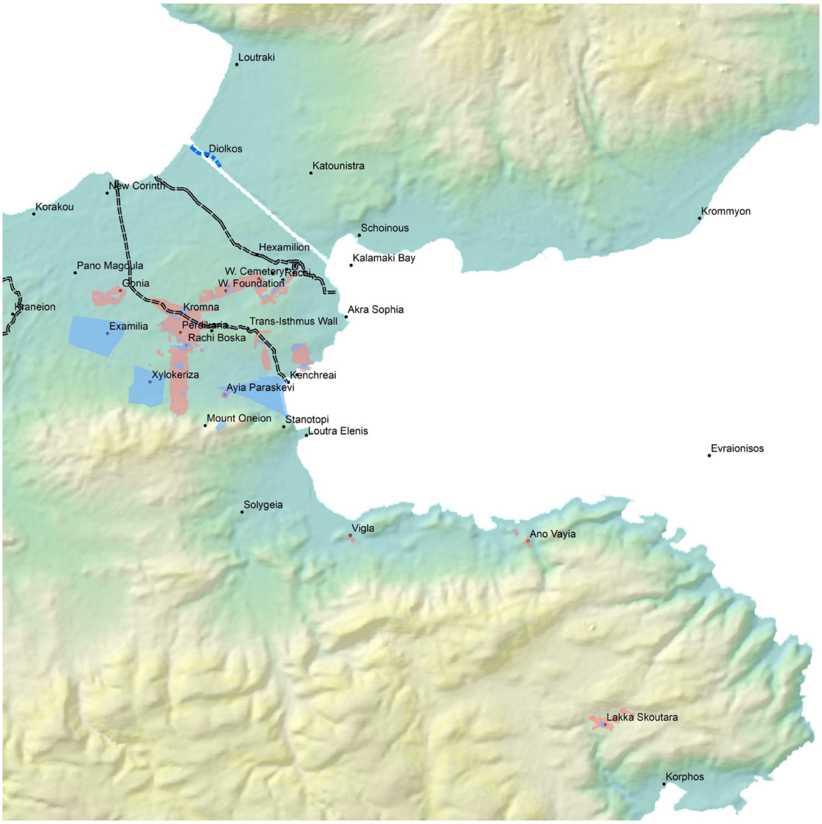


Figure 2.1. Topographic digital elevation model of eastern Corinthia showing intensive survey units (red) and LOCAs (blue) against modern relief. The map shows major toponyms noted in this chapter as well as prominent landscape features: the Corinth Canal, city walls of Ancient Corinth (upper left), Classical–Hellenistic trans-Isthmus fortification wall (upper center), the Hexamilion (upper right), and the excavated diolkos road. The DEM "BasemapLand: DEM Land around the Corinthian Gulf" was prepared and made publicly available by parnomikou in 2019 through ArcGIS Online Services.

systematic survey of the territory that began in the late 1990s (Ch. 3). This chapter, in short, is about establishing primary background contexts that inform the processes and data of the project.

2.1. Locating Famous Places: A Literary and Topographic Approach, 1675–1875

The Eastern Korinthia Archaeological Survey originated out of a long tradition of examining famous places in the region. As in other Greek territories, the first surveys of the Corinthia began as an effort to record sites known from classical authors. The documentation of the famous

Figure 2.2. The Isthmus of Corinth (viewed from the Monastery of Ayios Patapios). The town of Loutraki is visible in the foreground, New Corinth in distance, and Acrocorinth (above the ancient site) at far right. Most of the EKAS survey took place on the Isthmus between the Corinth Canal (visible in center) and the Mount Oneion range in distance, the subset of Corinthian territory that is most attested by ancient writers. Photo by author.

places of the Isthmus beginning in Venetian and Ottoman times grew, by the early nineteenth century, into an extensive historiography of traveler literature centered on the location, identification, and delineation of famous sites.[5]

The two important guides to the Corinthian landscape who directed the gaze of late medieval and early modern travelers were Strabo, the learned Greek geographer of the Augustan Age,[6] and Pausanias, the educated Greek tourist of the mid-second century AD.[7] Strabo was influential in popularizing an essentializing explanation of Corinthian geography that summarized most of regional history, including the growth and demise of the city of Corinth, in terms of an interconnecting territory with a few maritime sites.[8] Pausanias was important for leaving an itinerary of a more ancient Corinthia (cf. Paus., Book 2) that was principally scripted from the myths, stories, and anecdotes recorded by earlier Greek authors, and centered on *topoi* of the landscape that betrayed a pre-Roman history.[9] His account of the important places of

Figure 2.3. Eighteenth century map of the Isthmus of Corinth showing the ancient city of Corinth; the harbors at Lechaion, Kenchreai, and Schoinous; ancient fortification walls (including the Hexamilion); Nero's Canal Works; and the Temple of Poseidon. Map published in Richard Chandler's *Travels in Greece* (1776).

the territory guided early European travelers along predefined pathways to locate ancient Krommyon, Kenchreai harbor, Isthmia, and a handful of small sites between Isthmia and Corinth.[10]

While Strabo and Pausanias together provided a guidebook for envisioning Corinthian places and the logic of territory, travelers and cartographers who visited the region during the Venetian and Ottoman occupations constructed a landscape of famous places through a more rigorous combing of ancient and medieval literary sources, coupled with original observations on monuments and inscriptions.[11] The approach was synthetic and constitutive, centered on composing essential places from diverse textual evidence, and referential in that it depended on ancient authorities and the earlier travelers who followed them. The places established from Greek and Roman literature in

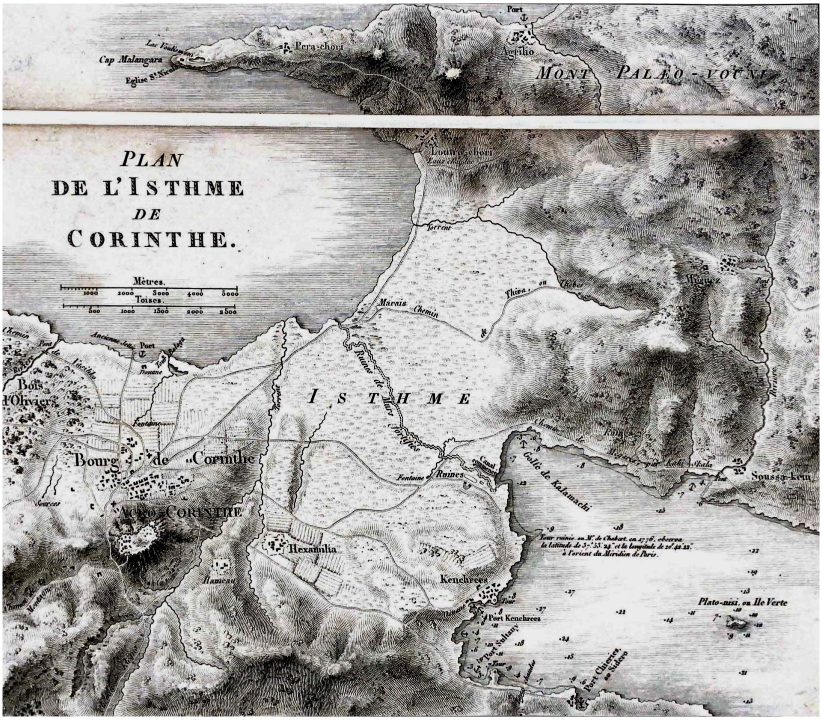


Figure 2.4. Early nineteenth century map of the eastern Corinthia by the French cartographer Jean Denis Barbié du Bocage. Map shows the city of Corinth, harbors and inlets, contemporary villages of Examilia and Kechries, and ancient ruins of Hexamilion fortification wall, Nero's canal trenches, and ruins at Isthmia. Map published in Jean Denis Barbié du Bocage, *Carte de La Morée* (1814).

turn supported a narrative about Corinth borrowed from Thucydides, Cicero, and Strabo, among others, which imagined the city as a wealthy commercial center that flourished in respect to a constantly connecting Isthmus. This approach to place-making resulted in a topology that essentialized the landscape and its places as timeless and enduring, but it was not particularly good at describing historical change.[12]

Only a handful of famous places outside of Ancient Corinth truly mattered in this literary approach to reading Corinthian landscapes.[13] The most important, of course, was the Panhellenic sanctuary at the Isthmus, with its sites sacred to Poseidon and Palaemon, near the modern village of Kyras Vrysi alongside the Corinth Canal.[14] Isthmia, as the site was named in the modern period,[15] was the archaeological jewel of the region, known from ancient writers such as Pausanias, Strabo, and Livy, who left accounts of its biennial athletic contests, markets, and built environment. The extensive built environment at the narrowest

Figure 2.5. Corinth's northern harbor at Lechaion, view from slopes of Acrocorinth to south. The harbor-works were visible to early travelers and cartographers through an internal basin (center in the photograph above), external moles, and dredge mounds. Photo by author.

Figure 2.6. Corinth's southeastern harbor at Kenchreai, view from the site of Stanotopi on Mount Oneion to south. Photo by author.

Figure 2.7. Corinth's other primary eastern harbor at Schoinous on Kalamaki Bay, view from the ridge with World War II installation to north. Photo by author.

part of the Isthmus—which lay along a major premodern coastal road, and, by the mid-nineteenth century, near primary maritime routes between the Corinthian Gulf and Saronic Gulf—guaranteed that early modern travelers would stop by to puzzle over visible building remains. Travelers easily identified the location of the Hellenistic stadium and theater in the cavities of the landscape, but had a more difficult time in finding the exact site of the Temple of Poseidon.[16] Isthmia formed a core component of the timeless view of the connected Corinthia in early modern scholarship because ancient writers themselves had characterized it as a famous marketplace that contributed to Corinthian wealth.

Corinthian harbors too formed part of the essential modern conceptual map of the region. These harbors brought foreign traffic, goods, and wealth into and out of the region on a daily basis. Corinth's northern harbor at Lechaion was well-known to ancient writers and clearly visible to early travelers and scholars through large dredge mounds and external breakwaters. Corinth's main eastern harbor at Kenchreai had no extensive settlement in early modern times but occupied a distinct and recognizable cove in the Saronic Gulf just beyond the Mount Oneion range; travelers recognized the visible remains of the harbor in submerged buildings just below sea level. Early modern travelers and cartographers discerned Schoinous,[17] a third harbor near the Panhellenic sanctuary of Poseidon, from breakwaters on the northern side of Kalamaki Bay.[18]

Figure 2.8. View toward Kalamaki Bay from Rachi settlement above Isthmia. The ravine-like depression on the lower and left side of the image marks the location of the largely unexcavated Hellenistic stadium. Photo by author.

Figure 2.9. The later Roman and Byzantine trans-Isthmus wall (Hexamilion) near the modern highway north of the site of Isthmia. Photo by author.

Other places and features noted by ancient authors and modern travelers and scholars similarly evoked Corinth's connective geography. Early modern writers, for example, frequently recognized the ancient towns and villages along major routes into and out of the Peloponnese that included Krommyon (between the Isthmus and the Megarid), Tenea (in the southern Corinthia), and Solygeia (south of Mount Oneion).[19] Nineteenth century writers likewise imagined the diolkos, an ancient toponym of Strabo denoting the narrowest zone of the Corinthian Isthmus (cf. Str. 8.2.1, 8.6.4, 8.6.22), as a great portage road that facilitated the movements of ships and cargoes and made Corinth wealthy. Travelers and cartographers also took note of the Emperor Nero's failed efforts to excavate an ancient canal through the Isthmus in 67 AD (cf. Figure 2.2 and 2.3). Remembered in antiquity as an act of folly, modern scholars encountered the massive gashes of the ancient canal in ditches on both the Corinthian Gulf and Saronic Gulf and recalled the region's maritime connectivity. A third set of features noted in itineraries and drawn on maps were the trans-Isthmus fortification wall and Hexamilion that Greeks constructed (according to extant ancient testimony, anyway) at the time of the invasion of Xerxes in 479 BC and again in early Byzantine times by the emperor Justinian (Section 2.3).[20]

Apart from these places and features linked to Corinth's maritime image, travelers and scholars had relatively less to say about the character and configuration of rural settlement or about land use in the Corinthia either in their own day or at any point in antiquity. There were occasional exceptions, of course: Europeans and Americans described for their own (sometimes colonialist) purposes the agricultural resources of the region or the conditions of life in modern villages.[21] But overall, literary descriptions of the Corinthian landscape became increasingly predictable and formulaic by the later nineteenth century.[22] The reconfiguration of the region's connective network in the development of the first railways, carriage roads, and Corinth Canal (1882–1893) generated a packaged tourism that overlooked the Corinthia besides a few famous places. At the end of the nineteenth century, scholars envisioned the countryside as an empty canvas and open territory largely because their nostalgic gaze narrowly centered on a handful of ancient places and their consequences in Corinthian history.[23]

Figure 2.10. The modern Corinth Canal, completed in 1893, transformed the district of the Isthmus. The EKAS survey used the line of the canal as the northeastern boundary of the survey region. Photo by author.

Figure 2.11. The ancient ridgetop site at Rachi Boska (above Perdikaria), first studied and published by Carl Blegen in 1920. The ridge was a main area of investigation for EKAS. Photo by author.

2.2. The Big Dig and the First Regional Archaeological Investigations, 1875–1950

Modern archaeological investigation of Corinthian territory evolved out of this interest in ground-truthing a landscape of famous ancient places and eventually produced genuinely new forms of knowledge through novel approaches and tools. The application of rigorous archaeological methods through documentation of surface remains and excavations introduced evidence that at times reinforced, at times contradicted, a straightforward reading of literary accounts. Modern investigations would ultimately transform perceptions of the landscape, but that change occurred gradually and centered mainly around the largest archaeological sites.

Before the mid-twentieth century, archaeological investigations of the region primarily focused on the big dig at Ancient Corinth, a massive American enterprise that began in 1896 to ground-truth the monuments noted by Pausanias, and exposed, in the matter of a generation, most of the center of the Roman city.[24] Only a handful of early promising archaeological explorations occurred beyond Corinth. Paul Monceaux excavated the Northeast Gate of the Byzantine Fortress at Isthmia in 1883 inferring (incorrectly) that it was the enclosure wall for the Sanctuary of Poseidon described by Pausanias;[25] it would be another fifty years before Jenkins and Megaw tested areas within and outside the fortress.[26] In 1884, the Hungarian engineer Béla Gerster, while planning and executing the modern Corinth Canal, documented the trenches left by Nero's aborted canal.[27] In the early twentieth century, Lambakis investigated and identified Kenchreai harbor as a Roman and Late Antique site.[28] Carl Blegen's publication of a series of Bronze Age settlements on the Isthmus constituted a unique investigation in this early period in that it explored and partially excavated settlements that were unknown to Homer or later classical writers.[29] Blegen investigated Korakou, a littoral settlement situated on a bluff above the Corinthian Gulf 1.5 km east of the harbor of Lechaion and 3.5 km northeast of Corinth; Gonia, a major settlement on a prominent terrace ridge north of the modern village of Examilia;[30] and Rachi Boska or Perdikaria, a distinct ridgetop on the Isthmus just south of Kromna (Section 2.3). All these investigations were sideshows to the major work of the time at Ancient Corinth but demonstrated how archaeology might function independently of texts to create new knowledge advancing region-level arguments about the territory in prehistory.

Figure 2.12. The excavated Hellenistic theater at Isthmia, with Saronic Gulf and church of Ayios Prodromos in distance. Photo by author.

Figure 2.13. The excavated second-century CE Roman Bath at Isthmia, facing west toward Corinth Canal (the canal lies in front of the houses visible in the photo). Photo by author.

Efforts to synthesize information—the first surveys and gazetteers—relied largely on a topography of places that were defined by ancient authorities and the early travelers who read them (see above) but were supplemented increasingly with independent observations about the physical remains. Harold Fowler's foundational publication of Corinthian topography in *Corinth I.1* (1932) is typical of the new mode of topographical survey in Greece. The work largely synthesizes ancient authorities in describing the famous places on the Isthmus—the port of Schoinous at Kalamaki Bay, the diolkos, the Sanctuary of Poseidon, the trans-Isthmus wall and Hexamilion, the canal cuts, Kenchreai harbor, and the Bath of Helen[31]—and follows Pausanias in skipping the territory between the district of Kenchreai and the Kraneion neighborhood in Corinth, only mentioning a Roman tomb and a small settlement east of Examilia village in the ancient quarries.[32] Yet, Fowler often makes original observations, for example, recording and photographing the "unusual and interesting" remains of submarine ancient walls, buildings, and moles at Kenchreai harbor.[33] In respect to parts of the southern and eastern Corinthia that stood outside the purview of ancient writers, Fowler offers an independent archaeological assessment.

This application of more systematic approaches to investigating sites planted the seeds of regional studies that would grow in the years following the Second World War. By this time, a scholarly focus on ancient literature had consolidated a conceptual map of the Corinthia as a landscape marked by a few very large sites still visible in the landscape. Yet, while archaeologists remained interested in ground-truthing the largest sites, they were also learning to see the material record of the Greek past in a way that was independent of ancient authors.

2.3. Populating the Territory, 1950–1975

Three developments in the investigation of the Corinthia transformed the picture of the Corinthian countryside in the decades after World War II. First, archaeologists undertook large-scale excavation outside of Ancient Corinth. The major work entailed investigating places associated with the Sanctuary of Poseidon at Isthmia. Beginning in 1952, Oscar Broneer and a team from the University of Chicago began full-scale excavations half a kilometer west of the Byzantine Fortress at Isthmia and revealed the plan of the temple:[34] "In a brief season's work with a very small force of workmen the most crucial problem of the topography was solved, the location and extent of the principal sanctuary were determined, and some objects of high intrinsic value

Figure 2.14. The monochrome mosaic in the main hall of the Roman Bath at Isthmia. Photo by author.

were brought to light." Over the next ten years, Broneer systematically exposed the entire temple and Sanctuary of Poseidon, a Hellenistic theater, cult caves, the early stadium, a Roman sanctuary of Palaemon, parts of a Roman Bath, and a Late Antique and Byzantine wall and fortress.[35] American excavators also revealed an extensive zone of settlement and buildings beyond the sanctuary at the Rachi settlement (a Hellenistic settlement on the prominent Rachi Marias ridgeline half a kilometer southwest of the sanctuary),[36] the Sacred Glen (half a kilometer due west associated with shrines to several deities), the West Foundation (a Hellenistic roadside monument about two kilometers west of the Poseidon temple),[37] and the West Cemetery (an Archaic–Classical cemetery on the outskirts of Kyras Vrysi).[38] Broneer's successor, Paul Clement, continued this work on a smaller scale by investigating the Hexamilion, Byzantine Fortress, and Roman Bath.[39] Since the late 1960s, many archaeologists working at Isthmia have spent time and energy working to process and understand the tons of finds produced by early investigations.

The other major area of large-scale excavations outside of Corinth was at Kenchreai harbor. The harbor town was recognizable from early modern times in the form of a submerged outer harbor featuring two seaward moles lined with impressive buildings.[40] The American archaeologist Robert Scranton began systematic excavations and

Figure 2.15. The trans-Isthmus road known as the diolkos near the Corinth Canal at the Corinthian Gulf. Photo by author.

underwater exploration in 1963 as a project sponsored by the University of Chicago and Indiana University, under the aegis of the American School of Classical Studies. The explorations exposed Roman to Byzantine moles, villas, warehouses, and a church. The results of five seasons of excavations appeared in a number of published volumes detailing the architecture, *opus sectile* glass panels, coins, pottery, and lamps, as well as ivory, bone, and related finds. These investigations shed light on the buildings located directly at the harbor, showing impressive buildings at the dock of an important Roman town. Like the excavations at and around Isthmia, the study of Roman and Late Antique Kenchreai complicated traditional topographical histories of the Corinthia by generating more sensitive readings of important ancient places on the Isthmus.

A second important development in the investigation of the Corinthian countryside was the notable shift in attention to smaller and hitherto anonymous sites. Rapid development of the region through new construction projects (such as the national highway) and intensive modern agriculture (through deep plowing and bulldozing) opened extensive plots of ground and exposed buildings, features, and artifacts dating to the Greek, Roman, and Byzantine periods. Greek archaeologists carried out a new work often on behalf of the national archaeological service to excavate buildings and features both large and small. Dimitrios Pallas, for example, exposed the massive Lechaion Basilica, an early Christian church dating to the reign of Justinian and measuring over 200 m long, making it one of the largest basilicas of the late antique Mediterranean.[41] Nikolaos Verdelis brought to light the physical remains of a limestone road across the Isthmus, which he called the diolkos (Section 2.1), comprising two long segments covering a distance of over one kilometer; the discovery led to a vibrant discussion about how Corinthians benefited from the portage business and trade in the Greek and Roman eras.[42] Most investigations of Greek archaeologists in the third quarter of the twentieth century revealed smaller rural sites, such as the Italian-style villa at Pano Magoula,[43] between Ancient Corinth and New Corinth, excavated by Pallas; the substantial Late Roman villa residence with private baths at Katounistra about 1.7 km east of the Corinth Canal;[44] the suburban villa at Anaploga on the western outskirts of Ancient Corinth;[45] or the Roman stoa with workshops at Lechaion.[46] Such finds proved significant in aggregate, populating the landscape with smaller sites that complicated an earlier assumption that this was a region of large places.

The third major development that altered the vision of the Corinthian countryside in the third quarter of the twentieth century was the implementation of regional surveys that grew out of a nineteenth century topographical tradition and new trends in global archaeology.[47] In the Americas, students of Julian Steward were then embracing cultural ecology models that studied the interaction between humans and their environments. Gordon Willey carried out one of the first systematic regional surveys in the Virú Valley in Peru in the late 1940s with the goal of documenting the remains of human habitation for the purpose of reconstructing the cultural forms and functions of past societies at the regional level.[48] Comparable regional survey projects in the middle decades of the twentieth century took place in the Amuq Valley in Turkey (Robert Braidwood),[49] the limestone hills near Antioch in northern Syria (Georges Tchalenko),[50] and the Diyala Plains of Iraq (Robert McCormick Adams), among others.[51] In these studies, the features, architecture, tells, and surface-exposed artifact scatters were more than simply enticing invitations to excavate; rather, they marked the locations of archaeological sites, the indicators of cultural systems, and the nodes of regional settlement patterns. The new surveyors

Figure 2.16. A private bath in the excavated later Roman villa at Katounistra near Loutraki. Photo by author.

Figure 2.17. A prominent stretch of the ancient quarries east of Examilia village. Photo by author.

Figure 2.18. A stretch of the Classical–Hellenistic trans-Isthmus wall along the Ayios Dimitrios ridgeline. Photo by author.

wanted to define historical settlement patterns by mapping regions as distinct interlinked systems of settlements, sanctuaries, roads, and natural resources.

In Greece, the pioneering project of this period was the Minnesota Messenia Expedition (UMME) carried out by an interdisciplinary team of scholars under the direction of William A. McDonald and Richard Hope Simpson.[52] Although the project began in 1955 with the intent to understand Bronze Age Messenia,[53] its directors soon began to examine later historical periods through the medieval era. UMME also adopted systematic survey (in place of older non-systematic topographic methods) and the study of the entire territory (instead of only excavated individual sites). McDonald and his colleagues envisioned the purpose of survey as creating dynamic models of human-environmental interaction by mapping the impressions of past habitations and changing patterns of settlements changing over time in response to ecological and cultural factors. In its regional perspective, systematic approach, theoretical orientation, and methodological attention to artifact scatters as the surface traces of sites and settlements, the project had an enormous influence on later surveys.

Regional studies carried out in the Corinthia during these decades were not as comprehensive or systematic as UMME or other surveys of the Levant and Middle East, but they do show a new orientation to regional frameworks for studying natural resources and settlement hierarchies. Michael Sakellariou and Nikolas Faraklas's *Corinthia-Cleonaea* (1971), for example, mainly synthesized earlier scholarship, but contributed new observations about ancient sites in the territory and sought to reconstruct the total system of human settlement for an ancient city.[54] Likewise, James Wiseman's extensive survey of the territory in the 1960s, published as *The Land of the Ancient Corinthians* (1978), aimed for comprehensive coverage and synthesis of all earlier archaeological work. Wiseman's important innovation was visiting all parts of the Corinthia—sometimes by himself, sometimes with small companies of friends—in an effort to reconstruct regional settlements, roads, fortifications, and natural resources that were mostly unknown to ancient writers. *The Land of the Ancient Corinthians* signals a more mature form of reconnaissance survey based on comprehensive coverage, autopsy, and attention to a wider range of surface traces, including artifact scatters.

Wiseman's survey proved important both for launching Corinthian regional studies and for detailing the history of poorly known sites in the region. However, because the survey was extensive and non-systematic, it tended to locate only visible architecture and the largest sites. A good example was his discovery of Kromna, a settlement on the Isthmus that developed in the midst of the Examilia Quarries at a strategic crossroads and site of fortification, just south of the modern Corinth-Isthmia road at about the mid-point between the villages of Examilia and Kyras Vrysi. Wiseman's investigations recorded remains spanning from the Archaic period to late antiquity, with the most significant and distinct material dating to the fifth and fourth centuries BC. Large quantities of Archaic to Classical period fine wares,[55] miniature terracotta vessels, figurines, and even a terracotta altar suggested domestic and religious activities; cemeteries on the western end of the scatter and sarcophagi throughout indicated significant mortuary elements. Wiseman identified this vast zone as a hitherto unknown Corinthian town called "Kromna," in his view the most important settlement of Classical date on the Isthmus. The identification of a Corinthian town called Kromna has proven untenable, but Wiseman's record of this scatter was important because such a scatter was almost wholly unknown to this point.[56]

Finally, Wiseman also examined the Classical–Hellenistic trans-Isthmus fortification wall,[57] recording, through surface investigation and targeted excavation, two stretches of walls running from the district of Kenchreai over the Ayios Dimitrios Ridge and across Kromna. His work suggested two phases of construction, an earlier one probably associated with the defense of the Peloponnese before Xerxes' invasion in 480, and a later one probably constructed by Antigonus Gonatas around the time of the Gallic invasion in 279 BC. The Classical wall, he argued, was characterized by mixed polygonal masonry and was typically 2.2 to 2.5 m wide, with a superstructure of mudbrick. The Hellenistic wall followed the same course, was slightly thicker (2.2–3.4 m), and was built with ashlar using Corinthian limestone. The presence of a Greek fortification wall across the Isthmus is often forgotten in representations of Corinthian territory but would have had a major effect on conceptions of the territory, the movement and flow of goods, and processes of settlement.

This brief overview of the great age of discovery of Corinthian settlements and sites does not exhaust all the important work of this period, of course: my goal rather has been to highlight some of the major revolutions that mark changing ways of seeing territory. As a consequence of these new extensive surveys and the stratigraphic excavations of particular buildings and places, experts began to see the Corinthian countryside differently. Instead of a relatively empty territory, scholars now saw a landscape populated with sites of various types and sizes. These included not just the famous and large sites known from ancient literature, but the smaller and often anonymous villas, roads, and churches. The advent of new modes of survey during this period also importantly redefined the concept of "site"—now read as surface artifact scatters marking buried habitation—as a key category of settlement archaeology.

2.4. Corinthian Studies, Intensive Siteless Survey, and the Backdrop to EKAS: 1975–2000

In the last quarter of the twentieth century, archaeologists adopted a range of novel archaeological toolkits in their study of the region—toolkits that offered new ways of knowing the Corinthian countryside. These methodological developments also prepared scholars for the large-scale regional study that came to be known as the Eastern Korinthia Archaeological Survey.

Work continued during this period at the major ex-urban sites but also focused on finer-grained stratigraphic excavation and the careful study of finds and contexts. Excavations in 1989 at the Sanctuary of Poseidon at Isthmia, for example, sought not to clear new ground but "to clarify the stratigraphic context of the sanctuary" through more careful attention to stratigraphy and collection of finds.[58] Whereas Oscar Broneer cleared over 20,000 m^2 of earth in less than 6 years, the new excavations sampled only several hundred square meters around the temple and at the Rachi settlement to refine chronology. Excavations at the Roman Bath in 1989 likewise added only a few new trenches to clarify the relationship of the mid-second century Roman building with the underlying Greek pool, while the major work centered on the conservation of the great monochrome mosaic of Room VI that had rapidly deteriorated since its discovery in the 1970s.[59] Archaeological work at Isthmia, then, focused on consolidating knowledge and fine-tuning historical development through cataloguing, analyzing, digitizing, and publishing hundreds of thousands of architectural and artifactual remains.

The most innovative work in the study of Corinthian countrysides in the final quarter of the twentieth century was a range of novel approaches to reading patterns of land use and settlement. Some of these involved the adoption of scientific, highly specialized techniques to investigate the territory's natural resources of limestone quarries, clay deposits, honey production, and marine resources.[60] For example, geologist Chris Hayward initiated a study of the limestone used in public buildings in Ancient Corinth with the goal of sourcing geological provenience to the quarries of the Corinthia—including (in the territory of EKAS) the Examilia Quarries and the quarries above

Kenchreai harbor.[61] Other scholars adopted remote sensing to understand the complex histories of land use visible in the field patterns. David Romano, for example, started the Corinth Computer Project to study satellite imagery and aerial photos; Romano's publications documented distinct episodes of Roman practices of centuriation still visible in land division in Ancient Corinth and Corinthian territory.[62]

Other breakthroughs took the form of novel approaches to reading settlement patterns. Corinthian archaeologists benefited from wider trends in Greek landscape archaeology, which led them to fine-tune pedestrian survey techniques and allowed them to gather more information from territories. Fundamentally, regional archaeologists intensified the pedestrian survey method by introducing more systematic approaches to fieldwalking; surveyors who once walked intervals spaced at 50 meters or more now traversed territories at intervals of 5 to 20 meters.[63] More intensive coverage of the landscape resulted in finer-resolution assessments of small sites of all periods.[64] Concomitant refinements in ceramic chronologies in the later twentieth century—for example, the refinement of Late Roman pottery chronologies[65]—helped to aid diachronic investigations by giving scholars better measures of cyclical patterns of boom and bust settlement. The finer-tuned layering of landscape opened the doorway to explore historical demography, economic vitality of regions and cities, and nucleation and dispersal of settlement—aspects of ancient life that are of broad interest to archaeologists, classicists, and ancient historians.

The implementation of these intensive surveys in the Corinthia from the 1980s had a major effect on scholarly understanding of the countryside. Most immediately, surveys of the Perachora peninsula,[66] the district of Kenchreai and the Ayios Dimitrios ridge, islands in the Saronic Gulf, and at the Byzantine Fortress at Isthmia recorded evidence of a denser network of small habitations, villas, and farmsteads across Corinthian territory than previously recognized.[67] The surveys also highlighted particular chronological patterns in the region, such as dominant signatures of settlement in the Late Bronze Age and Late Antique periods, that refined and challenged older views.[68] For example, Timothy Gregory and Nick Kardulias used the evidence from intensive surveys on the Saronic Gulf islands and parts of the Isthmus to argue that Late Antique settlements—such as the garrison at Isthmia, the sixth and seventh century villa at Akra Sophia,[69] and smaller settlements known from surface scatters in the region's marginal territory—indicated the continuing demographic vitality of the Corinthia in the later Roman period.[70]

Yet, the use of these new toolsets in the eastern Corinthia was not wholly straightforward. By the 1990s, scholars of Greek landscape archaeology had come to identify a whole new set of methodological and interpretive challenges that complicated the interpretation of the surface remnants of past settlements. Some noted problems with the very concept of "site," a categorical term of analysis typically denoting a scatter of ceramics or stone artifacts, and sometimes with associated walls and features. The very act of identifying, defining, and categorizing sites on a procedural level became more challenging as more intensive survey methods revealed a seemingly endless variety of artifact densities, materials, and distributions. In some regions, artifacts appeared in neatly discrete clusters with very little "off-site" material (stray artifacts in low densities found beyond sites). In other regions, such as the environs of the small poleis of Boeotia,[71] scholars documented a pattern of low-density artifact haloes that surrounded sites of different sizes, which they interpreted as scatters associated with ancient manuring practices.[72] Still in other territories, archaeologists recorded continuous carpets of artifacts of varying densities that reflected complex overlays of habitation and agricultural activity over time.[73] A vibrant scholarly literature developed around the procedural definition of sites and off-site scatters that remains an active point of discussion today.[74]

But there were more fundamental challenges to the concept of site that plagued Greek surveyors. Critical scholarship in other parts of the world undermined the concept of "site" on both methodological and ontological grounds. Robert Dunnell and William Dancey, for example, considered the site a weak category for studying human activity for the simple fact that the activities of cultural groups occurred across entire regions, not within a few specific areas. In their critical reviews of the concept in the early 1980s, they argued that the site was deleterious for archaeological analysis, and they advocated abandoning the site concept in favor of regionally-based data acquisition, a methodology that centered on mapping the distribution of individual artifacts across space.[75] Greek surveyors increasingly recognized the problems of the site concept and its correlate categories of farmsteads, villas, villages, and hamlets: the artifact scatters documented on the surface were remote proxies of a complex history of cultural and natural processes, not buildings or social and economic units frozen in time.[76]

From the 1980s, surveyors in Greece sought to deal with the problem of site by adopting new methodologies (developed elsewhere around the world) to record the wider range of artifactual material across the landscape. Some scholars adopted methods of "off-site" survey that retained the concept of site but also recorded material beyond the site through counting and sampling occasional scattered objects.[77] Other archaeologists rejected the category of site altogether in favor of approaches that mapped artifacts rather than packaged clusters over the countryside. Scholars who described their methods in terms of "distributional," "siteless," and "non-site" surveys sought to draw attention to their priority of documenting all human remains across entire landscapes, not just those within localized settlements.[78]

EKAS would begin as one of those regional surveys that moved away from the category of site to the artifactual elements of the surface record: the individual ceramic, stone, glass, and metal objects. While the project's archaeologists initially thought of their techniques in terms of documenting "off-site" scatters,[79] they would eventually describe their approach to the landscape of the eastern Corinthia as "non-site" or "siteless" survey—underscoring the problematic character of the concept of site as an archaeological construct and recognizing the incredible variation in the density of artifact scatters across the landscape.[80] The adoption of tract-level survey, which surveyed the landscape through small units called "tracts," would create snapshots of the patchwork pattern of artifacts across the territory's surface. Although the project would retain a site category, the so-called LOCA, or "Localized Cultural Anomaly" (Ch. 6), the primary intensive survey method would involve counting pottery and collecting representative samples. And applying distributional methods to the richly layered cultural environments of the Corinthian Isthmus would demonstrate how difficult it really was to define sites with any consistency.

01100010 01110010 01100101 01100001 01101011

The archaeologists who planned for a large-scale survey of Corinthian territory in the 1990s worked in an awareness of the potential and problems of using these new techniques for the study of the countryside. Gregory, Kardulias, and others organized an informal alliance of collaborators called the Korinthia Regional Research Consortium to give shape to growing interests in recording Corinthian settlement patterns in higher resolution and in addressing problems with the region's diachronic history. As Gregory and colleagues planned the EKAS project in the late 1990s, they sought to incorporate nested elements that could meet critical issues identified in survey literature. Recognizing the significant role of natural transformations of the landscape that could drastically affect the recognition of artifacts and sites,[81] the surveyors worked to involve geomorphologists who could map the landscape with a sensitivity to geomorphic conditions. To meet problems of surveyor bias and recognition of artifacts in the landscape, the project committed to an experimental team that could help understand artifact patterning better. Based on developments in the Sydney Cyprus Survey Project, the project also adopted a more sensitive technique for identifying pottery—the so-called chronotype system (Section 5.2.2)—which could enable fine-tuned readings of Corinthian settlement.

I will explain these methods and others in greater detail over the next several chapters. The important point here is that EKAS grew out of the long tradition of the investigations of one of Greece's most culturally rich landscape that included excavations of major sites in and near the Panhellenic Sanctuary of Poseidon at Isthmia, and more recent multi-disciplinary approaches of regional study that introduced wholly new ways of seeing and knowing the territory. These patterns of scholarship mark the immediate intellectual, historical, logistical, and methodological context for the archaeological work of the EKAS project in the two decades prior to its inception. I will now turn to a brief historical overview of the Corinthia Survey in order to outline how goals, outlooks, and methods developed between 1997 and 2003, and shaped the kinds of datasets that are now publicly accessible and reusable for analysis and interpretation.

Endnotes

1 Ancient Corinth (https://pleiades.stoa.org/places/570182), Korakou (https://pleiades.stoa.org/places/312809379), Isthmia (https://pleiades.stoa.org/places/570316), Kenchreai (https://pleiades.stoa.org/places/570347), Lechaion (https://pleiades.stoa.org/places/570420), and the diolkos (https://pleiades.stoa.org/places/570198).

2 Solygeia (https://pleiades.stoa.org/places/570682), Kromna (https://www.geonames.org/12514059/kromna.html), Perdikaria (https://www.geonames.org/12514081/perdikaria.html), and Gonia (https://www.geonames.org/12514037/gonia.html).

3 Trans-Isthmus fortification wall (https://www.geonames.org/12514074/trans-isthmus-wall.html) and Hexamilion (https://pleiades.stoa.org/places/242076354)

4 https://pleiades.stoa.org/places/570180

5 The following description of topography is based on my earlier studies of Corinthian territory (Pettegrew 2006, 78–145, and Pettegrew 2016), which synthesize earlier topographical scholarship. The reader may consult those studies for fuller bibliography.

6 Strabo: https://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.01.0239

7 Pausanius: https://www.worldhistory.org/Pausanias_(Geographer)/. On their influence, see Kaplan 2010, 76, 81, 100; Sutton 2001 and 2010, 122. On the literary and tourist gaze of early travelers to the Corinthia generally, see Kaplan 2001 and 2010.

8 Pettegrew 2016.

9 Paus. 2.1.1–2.5.5. For Pausanias in general, cf. Alcock et al. 2001, Hutton 2005. For the logic of Pausanias' treatment of the "sub-territory" of the Corinthia and Isthmus, cf. Hutton 2005, 97–101; Paus.2: http://www.perseus.tufts.edu/hopper/text?doc=Paus.+2.1&fromdoc=Perseus%3Atext%3A1999.01.0160

10 See, for example, the influence of Pausanias on Spon 1678, Vol. 2, 294ff, and Wheler 1682, Book 6, 436ff. Krommyon: https://pleiades.stoa.org/places/570386 and Kenchreai harbor: https://pleiades.stoa.org/places/570347.

11 Pettegrew 2016.

12 Pettegrew 2016.

13 Pettegrew 2006, 78–145.

14 Kyras Vrysi: https://www.geonames.org/259734/kyras-vrysi.html

15 The modern name of "Isthmia" was usually used in antiquity to denote the name of the biennial Panhellenic games, not a place. Ancient writers used the word isthmos to locate the place.

16 Hellenistic stadium (https://www.geonames.org/12514044/hellenistic-stadium-at-isthmia.html), theater (https://pleiades.stoa.org/places/513030903), and Temple of Poseidon (https://pleiades.stoa.org/places/107524051).

17 https://pleiades.stoa.org/places/570656

18 Kalamaki Bay: https://www.geonames.org/261608/ormos-kalamakiou.html

19 Megarid (https://www.geonames.org/257365/megara.html), Tenea (https://pleiades.stoa.org/places/570711), and Solygeia (https://pleiades.stoa.org/places/570682).

20 Archaeological investigations have suggested several phases related to two courses of walls in different locations: Classical and early Hellenistic walls on the one hand, and the Late Roman Hexamilion (Theodosius II), with refurbishments in later Roman and medieval times, on the other.

21 E.g., Wheler 1682, 443 and Dodwell 1819, 192–193. Samuel Gridley Howe, the American philhellene and doctor, also comments frequently on the character of devastation in the wake of the Greek Revolution: Kourelis and Pettegrew 2021.

22 Kaplan 2001 and 2010.

23 Cp. Sutton 2010 who has noted for the Nemea Valley how early travelers ignored the inhabitants and farmers of the region beyond the temple of Zeus.

24 Cf. Brown 2018, 175–191, for a recent overview of the excavations at Corinth.

25 Byzantine fortress at Isthmia: https://pleiades.stoa.org/places/206736898

26 Monceaux 1884, 1885; Jenkins and Megaw 1931/32; Gebhard and Gregory 2015, 6–7.

27 Gerster 1884.

28 Lambakis 1907.

29 Blegen 1920, with debate: Leaf 1923 and Blegen 1923. These studies remain foundational for framing the study of the prehistoric Isthmus even if the terms of discussion have shifted greatly: Rutter 2003; Pullen and Tartaron 2007, and Section 4.2.1 below.

30 Gonia (https://www.geonames.org/12514037/gonia.html) ;LOvillage of Examilia (https://www.geonames.org/262558/examilia.html)

31 https://pleiades.stoa.org/places/570440

32 Fowler 1932, 96–97.

33 Fowler 1932, 72–76, and Figs. 36, 39–42.

34 Broneer 1953, 195; Gebhard and Gregory 2015, 7.

35 Preliminary reports include Broneer 1953, 1955, 1958, 1959, 1962. Cult caves (https://www.geonames.org/12514045/isthmia-cult-caves.html), the early stadium (https://www.geonames.org/12514043/early-stadium-at-isthmia.html), and a Roman sanctuary of Palaemon (https://www.geonames.org/12514042/sanctuary-of-palaemon.html).

36 https://www.geonames.org/12514079/rachi-marias.html

37 https://www.geonames.org/12514056/west-foundation.html

38 On the West Cemetery, see Clement and Thorne 1974. On the West Foundation, see Dixon 2014.

39 Clement, various publications 1969–1977. For a summary of Clement's work, see Gregory 1995, 279–295.

40 Kenchreai harbor's subsidence is a result of both tectonic subsidence and marine transgressions: Scranton, Shaw, and Ibrahim 1978; Rothaus, Reinhardt, and Noller 2008.

41 See the reports of Dimitrios Pallas' excavations: Pallas 1954–1962.

42 For recent overviews of the scholarship surrounding the diolkos, see Pettegrew 2011 and 2016.

43 https://www.geonames.org/12514086/pano-magoula.html

44 https://www.geonames.org/12514087/katounistra.html

45 https://www.geonames.org/12514032/anaploga.html

46 On Pano Magoula, see Pallas 1955. For Katounistra, see Aslamatzidou-Kostourou 2013. Publications on Anoploga available in Robinson 1963, 77; Megaw 1963, 10–11; and Miller 1972. On the Roman Stoa at Lechaion, see Catling 1977–1978, 21; Catling 1978–1979, 11; Catling 1984–1985, 19.

47 Knodell et al. 2023, 268–270, 279–280.

48 Willey 1953.

49 https://pleiades.stoa.org/search?SearchableText=amuq&submit=Search

50 https://pleiades.stoa.org/places/658381

51 Tchalenko 1953–1958; Adams 1965; Yener 2005 (for a discussion of Braidwood's survey in the 1930s); https://pleiades.stoa.org/places/282851781.

52 McDonald and Rapp 1972.

53 https://pleiades.stoa.org/places/570480

54 The work was part of a larger project of the Ancient Greek Settlements Series carried out by Constantinos A. Doxiadis and the Athens Center of Ekistics.

55 https://n2t.net/ark:/28722/k26q2ct56

56 Wiseman 1978, 66–68, and note 120, with evolving reassessments, based on excavation and survey data, in Tartaron et al. 2006, 494–513; Caraher, Nakassis, and Pettegrew 2006, 14–21; Pettegrew 2006, 248–262; Tasinos 2013; and Pettegrew 2016, 82–87.

57 Wiseman 1963, 1978. For a recent discussion, see Pettegrew 2016, 68–74.

58 Gebhard and Hemans 1998, 4. Three preliminary reports detail the results of the 1990 excavation: Gebhard and Hemans 1992; Gebhard and Hemans 1998; and Gebhard, Hemans, and Hayes 1998.

59 Gregory 1995; Gebhard and Gregory 2015, 7–8.

60 Whitbread 2003; Anderson-Stojanovic and Jones 2002; Gregory 1985.

61 Hayward 1996, 1999, 2003.

62 Romano 1993, 2003, 2006, and 2010, among others. Cf. Doukellis 1994 and Walbank 1997 for different views. See summary of the discussion in Pettegrew 2016.

63 Cherry 1994 and 2003.

64 Cherry 1983, 1994; Bintliff and Snodgrass 1985, 127–128; Attema et al. 2020, 3.

65 Hayes 1972.

66 https://pleiades.stoa.org/places/570288

67 Perakhora Peninsula Survey (see now Lupak et al. 2021): Fossey 1990; Survey near Kenchreai: Gregory 1985; Island Surveys: Gregory 1984, 1986; Kardulias, Gregory, and Sawmiller 1995; Isthmia Survey: Gregory and Kardulias 1990; Kardulias 2005.

68 Gregory 1994.

69 https://www.geonames.org/253498/akra-sofia.html

70 Gregory 1985; Gregory and Kardulias 1990; Kardulias, Gregory, and Sawmiller 1995; Kardulias 2005. For a recent review, see Pettegrew and Caraher 2025.

71 https://pleiades.stoa.org/places/540689

72 Bintliff and Snodgrass 1988; Attema et al. 2020, 13–19; Knodell et al. 2023; and most recently, Bintliff 2023.

73 Cherry et al. 1991, 45–50.

74 E.g., Gallant 1986. See Cherry 1994 and 2003 for summative contemporary discussions. See Caraher, Nakassis, and Pettegrew 2006, and Meyer 2022 for critical reviews.

75 Dunnell and Dancey 1983; Dunnell 1992.

76 Osborne 1985 and 1992; Alcock, Cherry, and Davis 1994; Foxhall 2000 and 2001; Pettegrew 2001 and 2002; Stewart 2013.

77 Off-site survey methodology remains a common strand of regional survey work in the Mediterranean: see Attema et al. 2020, 13–19, for a review.

78 Thomas 1975; Dunnell and Dancey 1983; Dunnell 1992; Ebert 1992. For a recent review of this history in the Mediterranean, see Meyer 2022, 145–146.

79 See, for example, Tartaron 1999, 8; Tartaron, Gregory, and Pullen 2001.

80 Tartaron et al. 2006, 464: "EKAS is situated in the Mediterranean tradition of systematic, non-site (or 'siteless'), intensive survey, in clear distinction to surveys that do not walk the survey universe in a systematic way, or which focus on the discovery and investigation of "sites," however defined, to the exclusion of other material in the landscape. The non-site, intensive approach implies a commitment to landscape-based rather than site-based survey, a distinction that underscores ontological problems with the concept of site."

81 Among many, cf. Wright et al. 1990, 587–593. Alcock 1991, 444–446; Jameson, Runnels, and van Andel 1994, 149–213; Zangger et al. 1997.

Chapter 3
A Brief History of EKAS

The planning for a systematic survey of the eastern Corinthia began in an air of wild optimism.[1] A team of collaborators gathered at Isthmia in 1997 to prepare to undertake a multidisciplinary regional study of a major ancient Greek city and its significant commercial crossroad.[2] The work, it was predicted, would contribute to a broad-based reassessment of the Corinthia and yield "significant repercussions for our understanding of the history of the entire Mediterranean basin."[3] Some of the specialists who assembled to plan the survey expressed high hopes of covering a vast territorial extent, as much as 20–25 km^2 in the first season alone.

The realities of carrying out a regional project at the crossroads of Greece at the turn of a new millennium quickly whittled down expectations. Delays in gaining a permit stalled the start of work and limited the number of workdays. Permit restrictions required radical reframing of research design. Difficulties in securing funding limited the scale and scope of field operations. Conducting survey in a historically rich territory immersed field teams in the time-consuming work of recording features and artifacts from every period of the past. These and other factors conspired to limit total intensive coverage to an area of about 5 km^2—a small fraction of the initially envisioned proposal.

The next two chapters form a pair that outline the history, challenges, and results of a systematic survey of the eastern Corinthia. In one respect, Chapter 3 aims to describe how researchers with such ambitious goals at the start encountered administrative, financial, and archaeological challenges and conflicts that required negotiation of expectations and reframing well-made plans. As a collaborative research venture, the project's initial plans, which reflected the ideals, specializations, and ideals of its members, evolved in conjunction with problems, restrictions, and discoveries that happened along the way.

In another respect, both chapters aim to provide an honest, balanced overview of the legacy of the project in terms of its successful outcomes and its shortcomings. Together they highlight the fruitfulness of multi-disciplinary collaborations, the contingent aspects of survey datasets, and the unfinished business of analyzing the layers of Corinthian countrysides.

3.1. The Quest to Survey the Isthmus

A shared interest in investigating the Isthmus of Corinth initially drew a group of scholars to undertake the venture known as the Eastern Korinthia Archaeological Survey in the closing years of the twentieth century.[4] Following a preliminary planning season, the project started officially in 1998 as archaeologists of two projects at the Sanctuary of Poseidon at Isthmia collaborated on a permit request to the American School of Classical Studies Excavation and Survey Committee.[5] Timothy Gregory, then acting director of the Ohio State University Excavations at Isthmia,[6] teamed up as project co-director with Fritz Hemans, then Associate Director of the University of Chicago Excavations at Isthmia, to carry out a survey of the district of the Isthmus and the broader eastern Corinthia over three summers.

The work to which this collaborative project committed itself—the first major intensive survey of the eastern Corinthia (Figure 1.1 and Figure 2.1)—marked a culmination of many decades of archaeological investigation of particular sites on the Isthmus as well as the generational evolution of regional studies of the Corinthia (Ch. 2). Previous excavations and survey by Greeks and Americans provided a rich backdrop to EKAS that framed specific archaeological questions about the character of settlement patterns, the road and communication systems, and the exploitation of natural resources like clay and stone. Their work had demonstrated the importance of pedestrian survey for revealing ancient settlement patterns and making large-scale arguments about regional exploitation, land use, and economic vitality over time.

The project's original goals, outlined in a proposal to the American School of Classical Studies at Athens, marked a negotiation of the different, sometimes competing, if not conflicting, interests of directors, senior staff, and local Greek archaeological agency between broad theoretical issues and local particularities. Thus, the project's stated research orientation concerned "the issue of how the people of this region interacted with their immediate surroundings, with their neighbors in Greece, and with other parts of the broader world."[7] The proposal called for a systematic intensive survey that would elucidate the diachronic history of the region from prehistory to modern times. The explicit overarching research question centered on connectivity, that is, "the relationship between the eastern Korinthia, its main urban center, and the broader Mediterranean world."[8] Important diachronic questions concerned the relationship of urban population to the hinterland, the remaking of agricultural systems over time, and the evolving systems of maritime and terrestrial transportation. Yet, the thick history of research on the Isthmus raised a host of individual questions about settlement specific to different periods of the Corinthian past. The directors and senior staff wanted to contextualize known sites.[9]

In another respect, the proposal of 1998 makes clear a third entirely different goal: to support the local Ephoreia in recording a landscape rapidly disappearing through modern development.[10] Intensive surface survey, the proposal notes, was planned "as a necessity in the face of large-scale development throughout much of the region." Survey was a solution to "provide critical information to those agencies responsible for the management of the cultural resources of the region." The project proposal included a management plan to address modern development in collaboration with the local archaeological service and governing agents to help preserve the antiquities and sites of the region. In short, concerns about modern development of the territory were as important to the application as was understanding cultural interaction and exchange on the Isthmus.

The intensive survey of a historically famous land—rich in material culture, well-studied by modern scholars, and subject to rapid development—necessarily meant that the project would mediate between goals of addressing broad theoretical questions, answering particular historical questions, and recording sites under threat from bulldozer and construction. The project's archaeologists sought to use survey to shed light on Corinth's networks of communication and transportation, commercial orientations between eastern and western seas, and the impact of external control from central powers such as Mycenae and Rome.[11] Horden and Purcell's work on Mediterranean micro-regions and ecological interconnectedness was then on the horizon, and a growing interest in the archaeology of islands was enriching scholarly interest in maritime links.[12] At the same time, the staff were intent to carry out a survey of the neighborhoods of particular sites and features on the Isthmus and to understand the links among Isthmia, Kenchreai, Gonia, Kromna, the West Foundation, the fortification walls, and the Examilia Quarries east of Examilia village (Ch. 2).[13] The focus on the

Figure 3.1. View of the Isthmus, facing north from Mount Oneion to New Corinth and Loutraki, with Bill Caraher standing on right. The rapidly developing lowland plateau was the focus of survey efforts. Photo by author.

Figure 3.2. View of the Isthmus facing northwest toward Mount Oneion and Kenchreai. Note the quarried face of the mountain on the west and the modern farms and villas scattered across the district. The region's development was a primary factor in the decision to focus on the lowland central corridor west of the Corinth Canal. Photo by author.

suburban districts of Corinth, a major commercial center, also corresponded to a survey trend in the 1990s that involved documenting the artifact-rich surface environments of urban centers.[14]

The mediation between different kinds of objectives—theory, history, and resource management—explains why the project focused its attention on documenting the Isthmus. That landscape lay at the heart of all narrative conceptions of the project, since that territory was most subject to modern development and central to both broad questions about long-term human interaction in the region and narrower ones about the historical development of Corinth. Indeed, a major source of conflict in planning the survey was whether the project should sample the range of natural basins that make up a vast territory of 350 km^2 east of Ancient Corinth in order to address a broad overarching research question, or focus on contiguous coverage of the Isthmus to serve the practical needs of CRM work and reappraise historical settlement patterns. The proposal of 1998 sought to split the difference. Dividing the entire region into six natural drainage basins,[15] the project staff envisioned a stratified sampling scheme that would collect data representative of each environmental stratum but select transects that prioritized culturally rich areas susceptible to modern development.[16] This tension, explicit in the project's founding document, ensured that more resources and energy were directed to the well-known Isthmus over the broader southern region that was largely terra incognita, subject only to reconnaissance surveys, systematic gazetteers, and occasional documentation.[17]

While questions of connectivity, countryside, and cultural resource management created overarching coherence in research design, the makeup of the senior staff determined the survey's modular character. The preliminary seasons (1996–1998), along with the first full field season (1999), cemented roles and responsibilities. Seventeen scholars from a wide range of disciplines initially enlisted in the 1998 proposal as project staff, but permit restrictions and frustrated field operations the following year undercut plans for a lab operation at Isthmia, negated the need for a sizable group of artifact specialists, and altered project leadership. Fritz Hemans did not return for the second season. Daniel Pullen, an Aegean prehistorian from Florida State University, who had joined the project in 1998 as lab director, became project co-director. Thomas Tartaron, a prehistorian then at MIT and Yale University, joined the project from the start as field director and coordinated operations of the intensive and extensive survey components from 1998–2003. Richard Rothaus, then assistant director of The Ohio State

Figure 3.3. The Isthmia Dig House was the base station for planning the EKAS survey. Photo from EKAS Archives.

University Excavations at Isthmia, led the team's computing operations for databases and GIS and an independent geoarchaeology project (see below), while Joseph Rife, a long-time excavator at Isthmia, joined as the project's mortuary specialist to oversee a survey of regional burials. Lita Tzortzopoulou-Gregory, a scholar of modern Greece, oversaw the study of modern archaeology, and two geomorphologists, Jay Noller and Lisa Wells, led the environmental study. Several graduate students, including me, joined the ranks to supervise teams and eventually play a role in study and publication. The entire team brought experience from previous Greek surveys in the eastern Corinthia, the Thisbe Basin in Boeotia, the Sydney Cyprus Survey Project, the Nikopolis Survey, the Nemea Valley Archaeological Project, Berbati Valley Archaeological Survey, and the Pylos Regional Archaeological Project,[18] as well as survey in other parts of the world. On a practical day to day level, the project achieved coherence and research integration by the field director through constant communication and collaboration,[19] but also permitted flexibility and agency through the different components of fieldwork and study.

The EKAS staff planned to survey the eastern Corinthia through an intensive high-resolution survey of the region, especially in the documentation of artifact distributions. In adopting distributional

Figure 3.4. Geomorphology students collect field observations in 1998 in preparation for the start of survey the following year. Note the use of handheld GPS units, then only recently introduced to Greek survey projects. Photos by author.

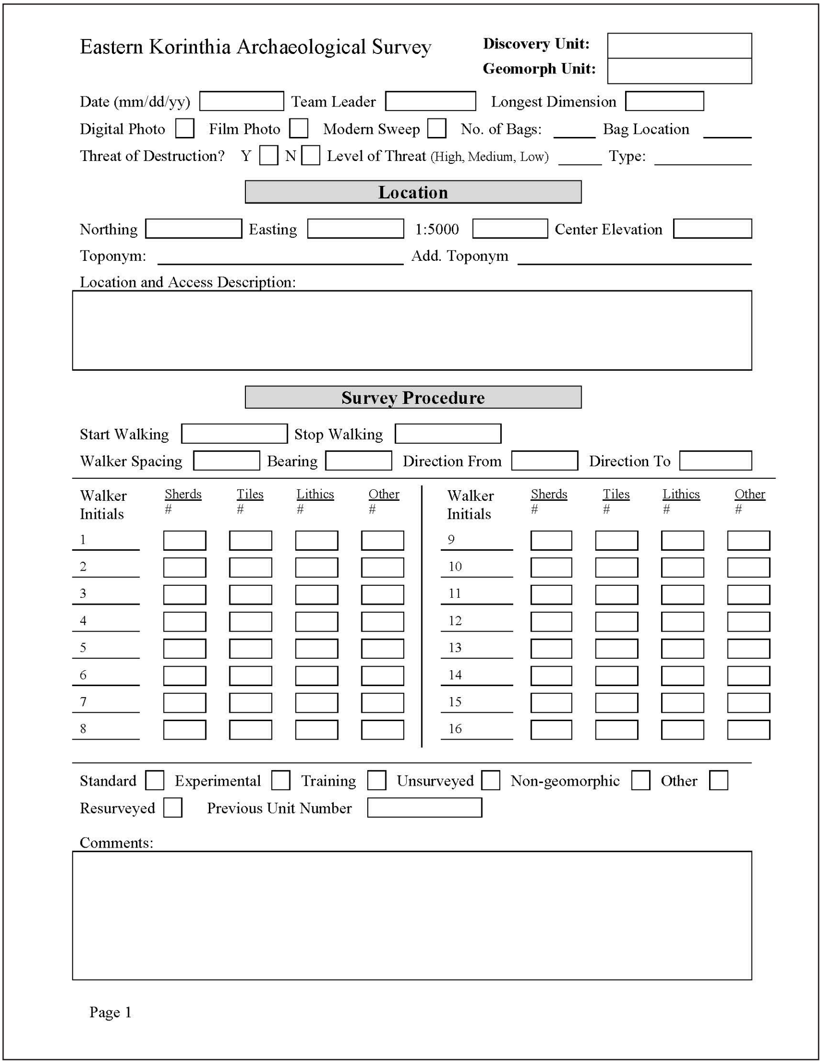
Figure 3.5. Fieldwork in 1999. Photos by author and EKAS Archive.

approaches to document all vestiges of human activities across the landscape, EKAS made use of tracts—that is, small survey units[20]—to create snapshots of the patchwork pattern of artifacts across the territory's surface. EKAS tracts tended to be smaller (2,000–3,000 m²) than those used in many other projects in Greece (2,000–10,000 m²) because EKAS teams defined units according to environmental considerations. Each field team included a geomorphologist who helped the team leader lay out survey units (called "Discovery Units"[21] or DUs: Section 5.1.1) in a way that respected environmental units (called "Geomorphic Units": Section 5.3.1). These GUs were distinct morphostratigraphic units defined with a sensitivity to variations in soil types and slopes and the underlying geomorphic or anthropogenic

Figure 3.6. Fieldwalkers in the 2000 season survey the Isthmus with Acrocorinth in the distance. Here walkers are spaced at ten-meter intervals and collect representative chronotypes in artifact bags. Photo by author.

processes that created them,[22] such as erosion, sedimentation, or bulldozing. Teams mapped the landscape with generally tiny Discovery Units that respected distinct GU boundaries and other field conditions like visibility. In a territory of scattered small citrus plots, olive groves, vineyards, and grain fields, the result was a mosaic of small units.

Besides working toward higher spatial resolution, EKAS also intensified data collection from each unit, especially in respect to its record of artifacts. A team leader and five fieldwalkers spaced ten meters apart walked across each unit and examined the ground one meter to the left and right of their paths; this two-meter wide "swath" resulted in a 20% sample of the survey unit. Each fieldwalker made a count of potsherds, tile, and other artifact types (glass, stone, and metal). There was nothing truly novel about those techniques, but the project was an early adopter of an artifact sampling strategy called the chronotype system (Section 5.2.2), which sampled the landscape by collecting unique artifact types, called "chronotypes," defined according to physically-distinct characteristics (fabric, color, thickness, and form) and temporal attributes.[23] The chronotype system was designed to gain more information from chronologically coarse survey pottery while leaving most objects on the ground.[24] This strategy resulted in a



Eastern Korinthia Archaeological Survey

Discovery Unit:
Geomorph Unit:

Date (mm/dd/yy) Team Leader Longest Dimension

Digital Photo ☐ Film Photo ☐ Modern Sweep ☐ No. of Bags: ____ Bag Location ____

Threat of Destruction? Y ☐ N ☐ Level of Threat (High, Medium, Low) ____ Type: ____

Location

Northing Easting 1:5000 Center Elevation

Toponym: ____ Add. Toponym ____

Location and Access Description:

Survey Procedure

Start Walking Stop Walking

Walker Spacing Bearing Direction From Direction To

Walker Initials	Sherds #	Tiles #	Lithics #	Other #	Walker Initials	Sherds #	Tiles #	Lithics #	Other #
1					9				
2					10				
3					11				
4					12				
5					13				
6					14				
7					15				
8					16				

Standard ☐ Experimental ☐ Training ☐ Unsurveyed ☐ Non-geomorphic ☐ Other ☐

Resurveyed ☐ Previous Unit Number

Comments:

Page 1

Figure 3.7. Image of Discovery Unit Form, Page 1, Location and Survey Procedure, 1999.

Eastern Korinthia Archaeological Survey **Discovery Unit:** ☐

Land Cover

Coniferous Forest ☐ Evergreen Forest ☐ Maquis ☐ Phrygana ☐ Mixed Deciduous ☐
Pseudo-Steppe ☐ Chasmophyte ☐ Coastal ☐ Marsh ☐ Other ☐

Almonds ☐ Olives ☐ Citrus ☐ Apricot ☐ Grapes ☐ Other Orchard/Grove ☐
Vegetables, Small-Leafed ☐ Vegetables, Broad-Leafed ☐
Grain ☐ Grain Stubble ☐ Kalamboki ☐ Weeds ☐ Other ☐

*Measure **Olive Tree** at Chest Level (below fork)*: Circumference Min ☐ Circumference Max ☐
Comments on Land Cover:

Visibility

Background Disturbance (None, Light, Moderate, Heavy) ☐
Percent Visible (walked area) ☐ Visibility Photos? ☐
Plowed? ☐ Soil Loose? ☐ Soil Compacted? ☐ Irrigation (None, Local, General) ☐
Sherd Crusting (None, Light, Heavy) ☐
Surface Clast Composition (Rocks, Organic, Other) ☐
Surface Clast Size: [Boulder (>300mm), Cobble (300-75mm), Coarse Gravel (75-19mm), Fine Gravel (19-5mm), Sand (<5mm)] ☐
Comments:

Land Use

Agricultural ☐ Unused ☐ Residential ☐ Recreational ☐ Industrial ☐ Quarry ☐
Transportation ☐ Commercial & Services ☐ Mixed Resid & Ag ☐ Mixed Resid & Indust ☐
Cemetery ☐ Dump ☐ Other ☐
Comments:

Page 2

Figure 3.8. Image of Discovery Unit Form, Page 2, Land Cover and Visibility, 1999.

Eastern Korinthia Archaeological Survey **Discovery Unit:** ☐

Features

M=Modern, PM=Pre-Modern, B=Both, I=Indeterminate / Check ONLY if ***Non-Functional***

Agri Facilities	______	☐	Hives	______	☐	Terrace, Collapsed	______	☐
Animal Pen	______	☐	Industrial	______	☐	Threshing Floor	______	☐
Baths	______	☐	Kiln	______	☐	Walls (non-terrace)	______	☐
Bridge	______	☐	Monumental Arch	______	☐	Well	______	☐
Burials	______	☐	Non-descript Arch	______	☐	Pit	______	☐
Church	______	☐	Observation Post	______	☐	Resin Collector	______	☐
Cistern	______	☐	Road / Track	______	☐	Cot(s)	______	☐
Domestic Bldgs	______	☐	Terrace, Walled	______	☐	Intermitt. Domicile	______	☐
Fortification	______	☐	Terrace, Bulldozed	______	☐	Opportun. Cooking	______	☐
						Other	______	☐

Comments:

Course of Action

None ☐ Modern ☐ LoCA ☐ Architect ☐ Resurvey ☐ Survey later ☐ Other ☐

Comments:

Page 3

Figure 3.9. Image of Discovery Unit Form, Page 3, Features, 1999.

Eastern Korinthia Archaeological Survey **Discovery Unit:** [ ]

Modern Sweep

Construction Styles, in situ Architecture

- Non-Mortared ☐
- Mud Mortar ☐
- Lime Mortar ☐
- Concrete ☐
- Other ☐

Construction Materials, in situ Architecture

- Concrete Block ☐
- Glass ☐
- Limestone ☐
- Mud ☐
- Elenit ☐
- Poured Concrete ☐
- Schist ☐
- Tile ☐
- Wood ☐
- Other ☐

Artifactual Material

- Bone ☐
- Brick ☐
- Cans ☐
- Glass Vessels ☐
- Glazed Glass ☐
- Firearm Shells ☐
- Large Porcelain ☐
- Plastic ☐
- Rubber ☐
- Sheet Metal ☐
- Shell ☐
- Wood ☐
- Machinery ☐
- Cloth ☐
- Paper ☐
- Other Metal ☐
- Coins ☐
- Concentrated Trash ☐
- Random Trash ☐
- Other ☐

Briefly Describe Modern Usage of Area with Description of Identifying Features and Artifacts:

Page 4

Figure 3.10. Image of Discovery Unit Form, Page 4, Modern Sweep, 1999. EKAS discarded this page in subsequent seasons.

sample of the types of artifacts present in a patchwork of survey units, but also marked a time-intensive process in the artifact-rich lands of the Isthmus, as fieldwalkers, the primary agents of this strategy, had to determine in each swath whether an object was unique or redundant.

The project staff intensified method in other ways that both reflected and contributed to the reflexive scholarship of survey at the turn of the new millennium. An entire field team under the supervision of Robert Schon was dedicated to work on survey experiments to assess walker reliability (Section 5.2.1 and Chapter 9) and to study Localized Cultural Anomalies through gridded collection (Ch. 6).[25] Richard Rothaus led the project to embrace digital and computing systems to integrate and analyze archaeological and environmental knowledge, including GIS (ArcView) for overlaying cultural and environmental information and developing probabilistic models for the identification of potential harbors and settlements. The project adopted relational databases to systematize archaeological information, and various tools like GPS units, digital cameras, and mobile phones to facilitate data collection and communication. The survey form in its original version and later iteration (cf. Figures 3.7, 3.8, 3.9, and 3.10) reflected the interests of different project participants in gathering more information about human and natural processes:[26] provenience, methods, and artifact totals (page 1: Figure 3.7); factors affecting the accuracy and quality of the artifact sample (page 2: Figure 3.8); features present (page 3: Figure 3.9); and modern artifacts and materials visible (page 4: Figure 3.10). The project abandoned the fourth page (modern form) after the 1999 season upon the recognition that modern junk could be found virtually everywhere on the Isthmus, but senior staff remained committed to studying the modern period on an equal footing with other periods.[27]

The survey began with the goal of creating a fine-grained view of a large section of the well-inhabited Corinthian Isthmus and, as much as possible, the southeastern Corinthia. The staff were to gather information from the landscape through a combination of tract-level survey, chronotype collection, environmental data, site collection, and extensive survey. Artifacts collected using the chronotype system would be brought back for study at the lab at Isthmia. Those were the plans, anyway. A defining story of the project is how trials, restrictions, limitations, and discoveries redefined priorities, interests, and work such that by the time of its conclusion, archaeological investments had shifted away from the artifact distributions of the fruitful Corinthian heartland to the architectural remains of those southern regions judged secondary in original projections.

Figure 3.11. View facing south toward Rachi Boska and the slopes of Mount Oneion. This area was the focus of intensive survey in 1999. Photo from EKAS Archive.

3.2. Survey Trials and Reframing

The project's initial plans for a survey of Corinthian territory required rethinking once the official permit for fieldwork finally arrived. A delay in receiving the permit changed the scope of the survey. In 1999, the official permit to undertake work arrived two weeks into the five-week season, leaving less than 60% of potential workdays. In 2001, permissions came in the fourth week of a five-week season, leaving less than 40% of potential workdays. The project's preliminary report estimates that delays in receiving permits during two of the seasons reduced total time in the field to 9 of 16 planned weeks.[28] My own estimate, according to the number of potential days dedicated to intensive survey, is that we were in the field 55 of potential 75 workdays over a three-year period. While this estimate may be less severe, the permit delays clearly did reduce the time spent conducting survey by 27%.

The conditions of the permit also changed the project's plans and shaped the datasets in major ways. Although project directors laid out an ambitious preliminary plan to sample all six drainage basins of the eastern Corinthia, the Isthmia and Examilia basins remained the focal point after the project was denied requests to sample areas of the southern territory beyond Mount Oneion other than the coastal districts of Vayia and Vigla, and the inland southern valley of Lakka

Figure 3.12. Dimitri Nakassis surveys a transect in a citrus grove north of Mount Oneion in 1999. Photo by author.

Skoutara.[29] Greek authorities were interested in directing the survey toward conservation of cultural resources, which meant surveying the artifact-rich Isthmus that was subject to rapid development and destruction. EKAS directors, who had a goal of supporting cultural resource management, selected transects on the Isthmus to contextualize known archaeological places. In the end, intensive distributional survey focused on the districts near the villages of Examilia, Xylokeriza, Kyras Vrysi, and Kechries, and around ancient sites including the prehistoric settlements of Gonia and Yiriza, the Archaic to Roman settlement at Kromna, the harbor town of Kenchreai, the Panhellenic Sanctuary of Poseidon at Isthmia, the Hexamilion, the West Cemetery, and the line of Examilia Quarries and tombs along the Corinth-Isthmia road.[30]

The permit's restrictions also changed the nature of the assemblage collected. A clause in the permit in 1999 forbid the collection of objects, a restriction that probably reflected concern about storage and curation of large numbers of highly fragmented potsherds.[31] This restriction changed the project's plan for artifact sampling strategy and analysis of objects: fieldwalkers were only allowed to flag, without collecting, unique chronotypes observed in their swaths. Ceramic analysts who had anticipated studying objects washed and cleaned at the dig house at Isthmia became a mobile processing unit who had to process dirt-covered artifacts gathered by the field teams *in situ* at every flag. Because flags were in short supply during the first year, the senior staff initially abandoned chronotype collection during the first full week of survey and asked teams to "bundle" unique chronotypes in close proximity to one another at the same flag.[32] In later seasons, the interpretation of the non-collection restriction was relaxed; surveyors were permitted to gather artifacts in bags in a corner of the survey unit, to collect unique objects of certain classes (e.g., coins and lithics), and to collect unique chronotypes from any identified "sites" (LOCAs: cf. Ch. 6) for storage at Isthmia. These later developments encouraged a greater dedication of resources to defining and investigating Localized Cultural Anomalies (LOCAs, the EKAS category of "site") where collection was permitted. In the end, teams collected for permanent storage over 3,000 objects.

In the long run, these restrictions affected the depth of artifact analysis even if the survey produced positive results. Mediterranean surveyors, like excavators, usually bring some sample of the material they encounter to the lab for washing, processing, and careful study by a range of expert analysts. Nearly half of the seventeen staff listed in the original application for survey were prepared to assist in the identification of objects. The demand on the artifact teams to identify and illustrate artifacts in the field diminished the potential study collection at Isthmia, transferred analysis to the field, and largely eliminated the lab operation. EKAS teams adopted digital cameras for fieldwork and analysis, but the models readily available at the turn of the millennium lacked the resolution or storage capacity for capturing high-resolution images. The need to efficiently identify objects in the field reduced chronological and functional resolution—especially in units where dirt or limestone caked artifact surfaces[33]—and prevented the collection of certain useful attributes of objects, such as weight. On the positive side, the sample of objects brought back to Isthmia remained substantial (Section 5.2.2), and project staff discovered in this cloud of restrictions a silver lining: chronotypes and minimal collection made a low impact on the landscape and reduced the problem of storage of objects.[34]

The restrictions, however, were ultimately frustrating at the time. Field teams intensively surveyed only 3.9 km^2 with distributional methods, scarcely one-third of a revised projected goal of 12 km^2, which was itself a scaled-down version of initial ambitions that the project would cover over 25 km^2. Considering that this sample of 4 km^2 comprised

Figure 3.13. Project directors and ceramicists Daniel Pullen (top) and Timothy Gregory with artifact processing teams in 1999 and 2000—the mobile “labs” in the field. Photos by author.

Figure 3.14. The valley of Lakka Skoutara in the southeast Corinthia. Photo by author.

only a bit more than 1% of a defined survey region of 350 km², Tartaron and colleagues observed that "our sample did not much resemble the plan we drew up initially."[35]

One cannot blame the project's limited coverage only or even mainly on permit restrictions, however. Even if we had had those extra days, the project would still have come up far short of its revised goal of 12 km². The slow pace of survey was a source of concern for EKAS directors and staff at the time, as there was a sense of anxiety, which I felt as a team leader and later noticed in mid-season and final reports, that we should have been moving faster. I used to think that the limits of coverage had to do with tiny survey units, defined according to geomorphic principles in attention to the fragmented field patterns of the Isthmus, but teams could move quickly through small units as team leaders divided walkers between contiguous tracts and survey several units at the same time. In retrospect, I think that limited coverage had more to do with available person hours and the application of intensive distributional methods to the Isthmus, one of the archaeologically richest regions of Greece. An analysis of our data shows that we moved much faster in the lowest-density areas of the survey region. In the final season of survey, for example, when we conducted a week of work in the inland valley of Lakka Skoutara, a region of the southern Corinthia with lower densities, the rate of coverage—about 45,000 m² per team per day—was over 1.5 times greater than the average rate per team for the previous 3 years of work (ca. 28,000 m²). The rate of survey at Lakka Skoutara, in fact, parallels the average daily coverage (ca. 49,000 m² per team per day) of another recent survey in the western Argolid that applied nearly identical methods as EKAS to a low-density landscape.[36] The reason that the Western Argolid Regional Project (WARP) intensively surveyed 18 km² over 3 years while EKAS covered only 4 km² was its significantly greater workforce (5–6 field teams in WARP compared with 2–3 in EKAS), maximum time in the field, and investigation of a lower-density landscape.[37] To meet a goal of surveying 12 km² in such a busy landscape, EKAS teams needed not greater methodological efficiency, but more funding to put more boots on the ground.[38]

I have my doubts now that a less restrictive permit and greater coverage would have altered the project's major takeaway: the incredible abundance and richness of the territory of the Isthmus. This insight transformed understandings of settlement systems (Ch. 4). With a more flexible permit, we would have found and analyzed more—artifacts, scatters, features, buildings, and sites of all ages—which would

Figure 3.15. The geoarchaeology team vibracoring in the wetland at Kato Almyri on the Saronic coast. Photo courtesy of Richard Rothaus.

Figure 3.16. The geoarchaeology team fastens to the Isthmia excavation van steel pipes for coring. Photo courtesy of Richard Rothaus.

Figure 3.17. Bill Caraher, leader of the extensive team, collecting a GPS point. View from Mount Oneion toward Isthmus. Extensive survey resulted in major discoveries including previously undocumented fortifications on Mount Oneion. Photo by author.

have contributed to the fine-tuning of densities and patterns in the landscape. But increased discoveries in such a rich landscape might also have entangled next steps and contributed further delays in the general dissemination of results. A greater devotion of resources to systematic extensive survey and systematic counting of artifact densities in circles or units interspersed across the entire Isthmus would have helped to contextualize the significance of the artifacts and features that we documented with intensive methods and would have provided an overall view of the varying character of material in the region, including differences between the Isthmus and the southeastern territory. But the deployment of our limited available resources to extensive work would have further reduced the area of intensive survey coverage.[39] Despite the flaws in the survey data, the project's results have significant value for evaluating Corinthian countrysides and thinking critically about survey data (cf. Ch. 4 and Ch. 14).

In this respect, we ought not to lose sight of the fruitful work of the project that came out of other ways of examining and seeing the countrysides of the eastern Corinthia in addition to systematic intensive survey.[40] In their methodological report, Thomas Tartaron and colleagues note that the restriction on plans for intensive survey was "to an extent offset by the project's other components."[41] They offer as one example the coastal survey (directed by Richard Rothaus) that worked in tandem with EKAS but under a separate geological permit to identify probable prehistoric and historical harbors in the region. Their study of coastal subsidence, record of tidal notches of ancient shorelines, deep coring to gage past marine life, and probabilistic modeling (through GIS) of prehistoric settlements and anchorage locations led the coastal team to discover two of the most significant sites of the survey—an Early Bronze Age settlement at Kato Vayia in 1999 and a Mycenaean port town at Kalamianos near Korphos in 2001[42]—that have resulted in a radical rethink of traditional understandings of the prehistoric Corinthia (Section 4.2.1).[43] We can add other components of EKAS that generated their own unique results. The computing team, directed by Richard Rothaus and managed by Lee Anderson, created a comprehensive GIS of the entire eastern territory that digitized layers for faults, streams, water sources, settlements, topography, and submerged coastlines identified by geomorphologists Jay Noller and Lisa Wells. The extensive team (Section 5.1.2), led by Bill Caraher, examined an additional 20 km^2 of EKAS territory through non-systematic methods, and made major discoveries, including fortifications in the saddles on Mount Oneion and at Vayia on the Saronic coast (Sections 4.2.2

and 4.2.4) as well as the semi-abandoned settlement of Lakka Skoutara (Section 4.2.5); these discoveries have made major contributions to discussions of Corinthian countrysides. Joseph Rife and Lita Tzortzopoulou-Gregory operated small teams, respectively, in the study of the ancient mortuary landscape, and the region's modern cemeteries and settlements across the entire survey territory; their work has led to major subsequent investigations.

The rich quality of data collected also offsets the project's loss of coverage. An integrative interdisciplinary methodology with distinct nested components extended the project's reach and fostered reflective conversation about methods, processes, and the meanings of landscapes that were fitting for archaeological currents in the late 1990s.[44] For example, the experimental team (Section 5.1.2) led by Robert Schon, then a graduate student at Bryn Mawr, generated frequent conversation about walker effectiveness and human subjectivity in observing the landscape.[45] The employment of gridded site survey (LOCAs) alongside siteless methods (Discovery Units) likewise prompted discussions about the meaning of sites and artifact scatters, and the role of survey as discovery, creation, and production. My own study of the "classical farmstead" (2001, 2002), which rethought the fundamental concept and artifact signature of past settlements, was born from the experience of recording distributions in different Corinthian regions: the materially-abundant Isthmus with its continuous carpet of cultural debris and the sparsely-inhabited slopes of Mount Oneion and southern Corinthia. The project's prioritization of archaeological computing both guided a quest for vanished sites through probabilistic spatial modeling and encouraged analysts to deconstruct sites by breaking down the surface records into their constituent elemental layers.[46] The operation of geomorphologists, ceramicists, and modern-period specialists amongst the field teams contributed to deliberative conversation (a kind of "slow archaeology") about the meaning and findings of fieldwork and the formation of the archaeological record. The reflexive nature of our work disrupted the relentless drive for efficiency that sometimes characterizes archaeological survey projects in Greece and other Mediterranean regions.[47]

In calling attention to the positive outcomes of the survey, I do not mean to oversell the necessary adjustments made in the course of the project as deliberate intentions. The restrictions to collection, sampling, and coverage were real and created obstacles to the project's primary goals. The scope of the project design for intensive survey necessarily changed in the process as the directors innovated and negotiated what

Figure 3.18. The inland valley of Lakka Skoutara with its (almost) abandoned modern semi-village became an emblem of the diachronic character of the survey. Photos by author.

might be done with what was granted. Still, the modular character of the survey, with its multiple and often decentralized components, resulted in a rich record of a complex landscape that has fueled archaeological and environmental studies of the eastern Corinthia over the last twenty years.

The EKAS project concluded officially in 2002 in the southeastern Corinthia, far distant from the bustling Isthmian corridor and in a little inland basin accessible only via a gravel road off the old national highway and mountain pass to Epidaurus.[48] A small team of fieldwalkers—the vestiges of a greater enterprise of previous years—undertook a week of survey in the valley of Lakka Skoutara, in and around a dozen partly abandoned houses of twentieth-century date. The conclusion of the survey in studying collapsed architecture of an abandoned modern semi-village at the greatest distance from the Isthmus, the heart of Corinthian territory, signaled a shift of momentum, attention, and interest. Yet, the work of documenting the modern houses and the archaeological formation processes affecting them marked one more negotiation of collaborative work that directed resources to the diachronic accent of the project, especially the modern period, and to a reflexive methodology designed to create sharper understandings of survey data.

The bustle and energy and excitement of that final season, however, was directed toward making sense of the recently discovered Early Helladic architecture at Kato Vayia, as well as the Mycenaean architecture and submerged harbor at Kalamianos-Akrotirio Trelli, only a short distance away from the nineteenth and twentieth century houses of Lakka Skoutara. Those discoveries inspired the project's prehistorians to take a view of the prehistoric Corinthia oriented not to centers like Corinth but to coastscapes, maritime networks, and the small worlds of the Saronic Gulf.[49] Such reorientation would mark one of a number of critical shifts in understanding the logic of settlement in different periods. High-resolution survey and a multi-disciplinary approach would lead to new insights about the changing Corinthian countryside that defied traditional historical understanding. Yet, this shift of attention to the southeast also left mostly untouched the analysis of the artifact-level distributional survey data that was originally a primary interest of investigators.

3.3. Lessons Learned: A Retrospective

I'll end this chapter by offering a retrospective on some of the lessons we learned in carrying out a distributional survey in an artifact-rich region. The following list is admittedly personal, but it originates from observation, conversation, and subsequent work with other EKAS collaborators over the years and overlaps in certain respects with other scholarship on best practices in Mediterranean survey.[50]

> *1. Know the landscape when counting the costs.* Although EKAS grew out of a generation of research at Isthmia and other surveys of the region (Ch. 2), a fuller knowledge of the historical and archaeological landscape of the eastern Corinthia would have better prepared staff to form realistic priorities for fieldwork and assess what was possible to accomplish given the resources available. The two seasons of preliminary work were important for understanding the region's geomorphology, but field teams were not fully prepared for the abundance and diversity of artifacts that immediately entangled them, nor could they predict the preserved architecture awaiting discovery in the coastal and mountainous zones. A preliminary season of preparation involving an informal walk across sampled zones of the survey region—without collection or formal study—would have created a stronger basis for predicting the range of discoveries and arti-

fact densities.[51] Alternately, EKAS might have tiered its methods according to the three-year permit cycle, devoting the first season to a systematic reconnaissance survey (sampling artifact densities through less intensive methods), the second and third to mapping artifact distributions, and study seasons to revisiting localized cultural anomalies. The fruitful coastal survey with its predictive models ideally would have been carried out before survey began as part of the process of determining areas suitable for survey.[52] Either way, a deeper understanding of potential entanglements of archaeological fieldwork would have aided in strategic planning and counting the costs before survey began.

2. Prepare a flexible, collaborative research plan. Any form of truly collaborative work involving participants from multiple institutions, disciplines, and specializations inevitably demands compromise, and this is especially true for work carried out in cooperation with local archaeological agencies. The EKAS project was itself a cooperative enterprise carried out for the common purpose of understanding the history of a region, but the work itself moved forward according to different methods, goals, interests, and teams: geomorphological mapping, distributional field survey, ceramic analysis, experimental archaeology, and the study of modern landscapes, for example. The project was also a partnership with the Ephoreia, which placed a greater priority on creating a record of sites in imminent danger of destruction through development. It is good practice to prepare a well-conceived research design,[53] but any regional survey project undertaking work as a flexible collaboration of partners and in cooperation with the country's archaeological agencies ought to expect to alter its methods and goals as part of the process of negotiating expectations for the survey. A project may not develop exactly as planned for a variety of reasons and may have to revise its research design, but good, fruitful work can still develop through negotiated plans. The formation of collaborative partnerships, moreover, may be its own reward in the creation of new relationships that yield further opportunities and encourage new ways of seeing the countryside.

3. Expand ways of seeing. Viewed in retrospect, the diversification of method in EKAS proved as consequential for the project as the ideal of areal coverage.[54] EKAS' model of collaboration combined a structure of field research (field director, lab director, geomorphologist, and team leaders) directed toward the common goal of distributional survey with modular research components designed to understand the landscape in different ways. The variety of those components—including a geoarchaeological team, a computer and GIS team, extensive field team, modern period archaeologist, mortuary specialist, and scholar of experimental survey—allowed us to see the region more holistically. Had EKAS doggedly stuck to only measuring artifact distributions through tract-level survey, or abandoned distributional survey for extensive survey,[55] it would have impoverished our ways of seeing the Corinthian landscape. The extensive and coastal teams created broader views of the entire landscape while distributional survey and LOCA investigations offered high-resolution windows into the rich lands of Corinth. The investigation of the modern period, including oral histories with Corinthian residents, opened our eyes to contemporary and recent human perspectives of the region.

4. Seek new sources of evidence. In historically rich countrysides like the Corinthian Isthmus, archaeologists only stand to benefit by interpreting distributional density data alongside a wide range of other kinds of evidence that may include features and buildings, previous archaeological investigations, inscriptions, oral histories, documents or texts, and environmental studies. Although EKAS staff prepared for the survey by gathering some such materials, I have found in retrospect that the available resources that could aid in the interpretation of a landscape were in fact much deeper and wider than we knew. As a rule, new kinds of evidence created a richer and fuller interpretive picture of different aspects in the history of the landscape. When I studied the history of the Isthmus from archaic Greek times to late antiquity, for example, I discovered that the scholarship of fortification walls across the territory, farmsteads excavated by the Greek archaeological service, and a range of literary testimony, among others, transformed elements of interpretation of distributional data.[56] As I have moved forward with collaborators in recent years on projects focusing on Corinth's post-antique and recent landscapes, I've learned from an incredible corpus of World War II aerial photographs, historic maps of the region of seventeenth to twentieth century date, and the work of local historians. The process of synthesis and integration is time-intensive and costly but creates more meaningful perspective in the analysis of artifact scatters (Cf. Ch. 14).

5. Slow down. Archaeologists have often idealized conducting survey as efficiently as possible to cover as much of the landscape as humanly achievable, but slower approaches to fieldwork, analysis, data publication, and interpretation add quality and deliberativeness to the process of knowledge creation.[57] The logic of efficiency makes sense in light of scholarly expectations to interpret the countryside comprehensively over a range of environmental zones and the expectations of granting agencies for *more* results: survey a territory at the largest scale possible, publish results, and move on to the next territory. Yet, our experience in EKAS highlights the value of a slower archaeology that privileges conversations and interdisciplinary methods (Chapters 5 and 6), deliberative preparation of data (Ch. 7), quality control through critical analysis of artifact scatters (Ch. 9), and gradual incremental analysis (Chapters 10, 11, and 13) and interpretation (Ch. 14). While there is a clear need to maximize time in the field given the expectations of archaeological institutions and granting agencies, slower fieldwork, data curation, and interpretation are important for unlocking the histories of the countryside and training new generations of students to read it. Moreover, as the work of landscape archaeologists in a number of regions has shown, the process of interpreting Greek countrysides and analyzing the results of survey rewards ruminating over data alongside other kinds of evidence over time.[58]

6. Collect less. In truly abundant landscapes like the territory of Corinth, collecting less is better. Timothy Gregory first made this point in respect to being forced by permit restrictions to limit the collection of physical objects: a low-collection strategy, he observed, made a lighter impact on the archaeological record and local storage facilities.[59] While there is obvious value in removing materials from the field for washing, processing, and identification,[60] few archaeologists actually revisit old survey assemblages after a project concludes and survey material may pose a burden for those who administer its storage.[61] The capacity of digital cameras and digital workflows, in any case, now provide pathways for making materials more accessible without over-collecting. The principle of collecting less does not only apply to physical remains, of course, since every kind of data collected through a survey form requires an effort of collection, which, when repeated thousands of times, impacts coverage, as we discovered in 1999 when we documented modern scatters of trash over the Isthmus (Section 5.2.3, 12.6). Information also demands its own longer-term cost in terms of data processing, refinement, management, and storage (Ch. 7) that may not be justified by the benefit it provides for analysis. Landscape archaeologists ought to carefully weigh the potential value of additional collected information against the cost of data creation, maintenance, and publication. Many of the EKAS datasets and fields (Ch. 7, Appendix II) have never been systematically analyzed.

7. Define sites later. Sites were not particularly important for the way that EKAS formulated its research design, which took density of objects as the primary unit of investigation in distributional survey, but they marked a significant language of communication to our collaborators in the archaeological service about what we thought (at the time) was most important in our discoveries. Defining a place as a Localized Cultural Anomaly also had a secondary value in that it allowed EKAS teams to collect a sample of objects for permanent storage at Isthmia. Yet, in the historically rich countryside of the eastern Corinthia, our definition of high-density clusters as LOCAs often proved misleading inasmuch as they reflected our impressions of artifact densities rather than actual artifact densities or period densities on the ground (Cf. Ch. 6, Ch. 10, Ch. 12, and Ch. 13). While I do not advocate abandoning the site concept altogether, the LOCA category was not especially useful for accurately defining the densest clusters in the artifact-rich environs of the Isthmus (Section 6.1) because artifact overlays of different periods create spikes in total density that do not consistently represent the hotspots for understanding any particular period.[62] In regions with continuous carpets, it is more accurate to define "sites" (or high-density units, zones, or hotspots) after the archaeological and geospatial data are refined to create a more objective assessment for different periods and material classes.[63]

8. Layer the landscape. When we set out to survey the eastern Corinthia using distributional methods and computing technologies, we could not quite have imagined the potential value that data-centered approaches created for layering the landscape. I learned through subsequent analysis and study that data-centric approaches in artifact-rich lands greatly improves our understanding of the scatters we encounter in the countryside. Our work of interpreting artifact scatters or features over the last twenty years has highlighted the value of approaches that unravel and reaggregate the layers of the landscape in different ways. Data-centric distributional survey approaches make possible seemingly infinite pathways to unlock new views of the Corinthian countryside, and indeed, by proxy, other Greek countrysides, through its data aggregates, layers, and fragments (cf. Ch. 11, Ch. 12, and Ch. 13). They create room for experiment, play, and refinement in the interpretations of past settlement, land use, and human activities. Later chapters will offer a few ways of teasing meaning from layers (Ch. 11, Ch. 12, Ch. 13, Ch. 14), but other archaeological publications have also highlighted various productive pathways (Ch. 4, Appendix I).

9. Make data usable and sharable from the start. Surveyors who make use of data-centered distributional survey should plan to curate and share data from the beginning of their projects.[64] Archaeological surveys produce massive datasets based on multiple modes of collection. Making that data usable may require several years of data entry, refinement, selection, and finetuning (Ch. 7). The directors of the Eastern Korinthia Survey admirably adopted a policy of archiving and sharing data and publication opportunities. The computing team invested in digitization of documents, survey units, and data at the time of survey by scanning documents, entering data at the end of each field season, and distributing available data to staff. Yet, there were still data losses along the way (Section 7.1). I now see that far more time was clearly necessary for cleaning, refining, and curating data for analysis, publication, and reuse. The comprehensive work of making data publishable and reusable required a significant effort of quality control that should have been done at the time of survey. Anyone who plans an archaeological survey today should think carefully about the real costs of making data usable and understandable to its participants and broader user groups through quality control, metadata, and paradata. A plan for digital data ought to include not only developing datasets but refining and characterizing them with other users in mind.

10. Publish early and piecemeal. Publishing distributional survey from historically rich regions is challenging because it requires the technical analyses of different datasets as part of a synthesis of other classes of evidence that are as difficult to understand. In particular, the complexity of interpretation can so entangle the landscape archaeologist that a comprehensive publication of the project's findings never appears. Publishing a "critical edition" of a project as I am doing here offers a pathway to analysis unencumbered by the more difficult work of interpreting regional history. This kind of preliminary comprehensive publication of history, context, methods, datasets, and terms of analysis should be carried out as early as possible before archaeologists move on and to ensure that all subsequent interpretation is based in the foundation of an established "critical text." The hard work of drawing up regional histories, social and economic studies, or thematic interpretations for a final publication ought not to become an obstacle to data curation, publication, and description but should create a foundation for ongoing, piecemeal publications that push out slower, more sensitive readings of the countryside.

01100010 01110010 01100101 01100001 01101011

In this chapter, I have offered a retrospective reflection on the history of the Eastern Korinthia Archaeological Survey with the aim of describing decision-making about the project's research design, evolution, trials, and reframing. The project's archaeological research goals, I have shown, developed in respect to changing collaborations, circumstances, discoveries, and especially negotiations between the project's archaeological professionals and local organizations, most notably the Ephoreia. Like all archaeological projects, EKAS reflected the agents involved in the project: the decisions they made shaped the datasets now published online. Despite the project's shortcomings, and its drift, in some respects, from an original research plan, compromise and accommodation among the senior staff have led to fruitful research outcomes and created ongoing opportunities for further exploration.

Endnotes

1 The planning of EKAS began with a season of environmental work (directed by Jay Noller) in 1996 under permits from the Hellenic Institute of Geology and Mineral Exploration (IGME). Survey was undertaken from 1999 to 2003 under a permit from the Hellenic Ministry of Culture granted to the American School of Classical Studies at Athens, and in cooperation with Panayiota Kasimi and the 37th Ephoreia of Prehistoric and Classical Antiquities, and Konstantina Skarmoutsou and the 25th Ephoreia of Byzantine and Post-Byzantine Antiquities. Study seasons have continued intermittently since. See the preface for a full acknowledgement of the project's funders.

2 https://pleiades.stoa.org/places/570316

3 "Eastern Korinthia Archaeological Survey: Revised Proposal to the American School of Classical Studies Excavation and Survey Committee, 1998," October 4, 1998, p. 1; Corinthia: https://pleiades.stoa.org/places/570180

4 https://pleiades.stoa.org/places/570317

5 Sanctuary of Poseidon: https://pleiades.stoa.org/places/107524051

6 This long-running project is now the Michigan State University Excavations at Isthmia and is under the direction of Dr. Jon Frey (Director) and Dr. Lita Tzortzopoulou-Gregory (Assistant Director).

7 Revised Proposal 1998, p. 1.

8 Revised Proposal 1998, p. 4. Cf. Tartaron et al. 2006, 455–456: "The eastern Corinthia, or the territory lying east of ancient Corinth, offers a unique opportunity to investigate the changing relationships among urban, 'sub-urban,' and rural entities from prehistory to the present.... The long-term human history of the eastern Corinthia reflects the interplay of local, regional, and supra-regional interactions. A principal aim of EKAS has been to explore the way these relationships developed and changed at diverse spatial and temporal scales...Thus, a primary focus of EKAS has been the changing relationship between the urban center at Corinth and its hinterland in historical times."

9 Tartaron et al. 2006, 456: "More broadly, we hoped that the survey data would contextualize known sites through the discovery and study of new sites and off-site material, reveal intraregional variability in human activity upon the diverse coastal, lowland, and upland landscapes of the eastern Corinthia over time, and illuminate the interactions of the people of the eastern Corinthia with other parts of the Aegean area and beyond."

10 Revised Proposal 1998, p. 1, 25. Cf. Gregory and Hemans 1999.

11 Corinth (https://pleiades.stoa.org/places/570182), Mycenae (https://pleiades.stoa.org/places/570491), and Rome (https://pleiades.stoa.org/places/423025).

12 Horden and Purcell 2000; Broodbank 2000.

13 Kenchreai (https://pleiades.stoa.org/places/570347), Gonia (ttps://www.geonames.org/12514037/gonia.html), Kromna (https://www.geonames.org/12514059/kromna.html), the West Foundation (https://www.geonames.org/12514056/west-foundation.html), the fortification walls (https://pleiades.

stoa.org/places/242076354), and the Examilia Quarries (https://www.geonames.org/12514055/examilia-quarries.html) east of Examilia village (https://www.geonames.org/262558/examilia.html).

14 Bintliff and Snodgrass 1988; Alcock 1991.

15 On the definition of the six basins, see Tartaron et al. 2006, 464–465.

16 Revised Proposal 1998, 2: "Areas most under threat of development will receive a higher priority for survey, focusing particularly on the development taking place along the expanding transportation corridors."

17 Sakellariou and Faraklas 1971; Wiseman 1978.

18 Thisbe (https://pleiades.stoa.org/places/541146), Boeotia (https://pleiades.stoa.org/places/540689), Nikopolis (https://pleiades.stoa.org/places/531013), Nemea (https://pleiades.stoa.org/places/570504/), Berbati (https://pleiades.stoa.org/places/410857095), and Pylos (https://pleiades.stoa.org/places/570640).

19 Tartaron et al. 2006, 463.

20 https://opencontext.org/media/08818e8f-8219-4307-b102-d8a3e780033e

21 Discovery Units GIS Polygons: https://n2t.net/ark:/28722/k2df72g4h

22 Geomorphology Units GIS Polygons: https://n2t.net/ark:/28722/k2nz8h317

23 Tartaron et al. 2006, 475–481.

24 Gregory 2004; Moore 2008; Caraher, Nakassis, and Pettegrew 2014, 34–40.

25 Localized Cultural Anomalies (https://n2t.net/ark:/28722/k2sn0hh26) and gridded collection (https://n2t.net/ark:/28722/k2xd1795v).

26 Original version (https://n2t.net/ark:/28722/k2z03j655) and later iteration (https://n2t.net/ark:/28722/k2mp5fz79).

27 Diacopoulos 2004; Tartaron et al. 2006.

28 Tartaron et al. 2006, 464.

29 Vayia (https://www.geonames.org/9409078/vayia.html), Vigla (https://www.geonames.org/12514008/vigla.html), and Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html)

30 Xylokeriza (https://www.geonames.org/251521/xilokeriza.html), Kyras Vrysi (https://www.geonames.org/259734/kyras-vrysi.htm), Kechries (https://www.geonames.org/260288/kekhries.htm), Yiriza (https://www.geonames.org/12514036/yiriza.html), Hexamilion (https://pleiades.stoa.org/places/242076354), and the West Cemetery (https://www.geonames.org/12514057/west-cemetery.html).

31 Other contemporary regional projects experienced similar restrictions: Cosmopoulos 2001, 26, 82–83, commenting on restrictions of collecting in the Oropos Survey. Cf. Attema et al. 2020, 37–38.

32 https://n2t.net/ark:/28722/k20z7mv7z

33 Field teams noted that sherd encrustation was "heavy" in about 14% of units (n=187 of 1,338).

34 Gregory 2004.

35 Tartaron et al. 2006, 465.

36 The WARP survey data will be published at Open Context. Thanks to the directors of WARP for sharing this data ahead of publication.

37 https://doi.org/10.6078/M7JS9NH8

38 The project failed to receive large grants but pieced together funding from institutional support and smaller grants from external agencies. See the preface for acknowledgement.

39 Attema et al. 2020 and Knodell et al. 2023 offer valuable overviews of the costs and benefits of intensification given limited resources.

40 Tartaron et al. 2006, 456–462.

41 Tartaron et al. 2006, 465.

42 Kato Vayia (https://www.geonames.org/12514005/kato-vayia.html), Kalamianos (https://pleiades.stoa.org/places/458012868), and Korphos (https://www.geonames.org/259310/korfos.html)

43 Among many, see Tartaron, Pullen, and Noller 2003; Pullen and Tartaron 2007; Tartaron et al. 2011; Tartaron 2013; Tartaron and Pullen 2013; and Pullen 2019a and 2019b.

44 Hodder and Hutson 2003.

45 The results of his work are available in his dissertation (Schon 2002) and discussed in Chapter 9.

46 E.g., Caraher, Nakassis, and Pettegrew 2006; Pettegrew 2007; Pettegrew and Caraher, 2025.

47 Caraher 2014.

48 https://pleiades.stoa.org/places/570228

49 Saronic Gulf (https://pleiades.stoa.org/places/570654)

50 I thank the anonymous reviewer for recommending this addition with a few specific suggestions. Cf. Attema et al. 2020, 44–50, for a comprehensive list of 17 good practices in regional survey. Their list of best practices in survey is excellent but should build in flexibility to accommodate the ground-level realities of change and negotiation.

51 Bill Caraher, Scott Moore, and I applied this lesson from EKAS in a subsequent investigation of a buried coastal town in Cyprus. We began by walking across most of the projected survey zone over the course of a couple of days. Making notes about the range of densities, we then determined appropriate methods and approach to survey. Caraher, Moore, and Pettegrew 2014, 2–5. Cf. Attema et al. 2020, 46–47.

52 Meyer 2022 recommends a greater role for extensive survey as part of an overall project design.

53 Attema et al. 2020, 44.

54 See Knodell et al. 2023, who discuss in a positive light the variety of methodological traditions in Mediterranean survey today.

55 Meyer 2022 has advocated a site-based approach to discovering the landscape, which begins with well-conceived definitions of sites and proceeds to predictive modeling to target sites through programs of extensive survey. EKAS, in fact, included a geoarchaeology team that made use of predictive modeling, as well as an extensive survey team that targeted zones of interest; both teams made significant discoveries of architecture and artifacts in remote regions of the Corinthia (see Chapters 3 and 4). Yet, our view of the eastern Corinthia would

have been impoverished had we not used distributional survey. We could not have reconstructed the diachronic history human activity across the Isthmus, for example, using targeted site-minded survey, as the continuous carpet of artifact-rich zones stymied our efforts to define LOCAs consistently (Section 6.1). While our experience shows clear merits to incorporating more predictive modeling and extensive survey within a research design, it also highlights the value of a variety of approaches that enable one to create a more integrative view of the landscape (see Tartaron et al. 2006).

56 Pettegrew 2016.

57 Tartaron et al. 2006, 463–464. On slow archaeology, slow data, and "craft" in archaeology, see Caraher 2014, 2015b, 2016; Kansa and Kansa 2016; Kansa 2016; Huggett 2022.

58 See, in particular, the developing collaborative history of the Boeotia Survey led especially by John Bintliff: https://www.boeotiaproject.org/project-history/. Our own analysis and interpretations of survey data in EKAS are ongoing ones that have unfolded over years of study: see Appendix I for a compilation of scholarship.

59 Gregory 2004.

60 Attema et al. 2020, 38–39.

61 One compromise, when permits allow it, is to collect abundantly, process and study material, and then return most to the field apart from catalogued remains. This was the solution we elected in the survey of a large coastal site near Larnaca, Cyprus, where storage created a burden for the regional museum: Caraher, Moore, and Pettegrew 2014.

62 E.g., Caraher, Nakassis, and Pettegrew 2006; Pettegrew 2015.

63 I do not believe that Meyer's recommendation (2022, 152) to define sites deductively, through a priori site definition (rather than posterior analysis), would have worked in the artifact-continuous zones of the Isthmus. There, the complexity of overlapping scatters defied traditional site definition. However, clearer, more consistent, and deliberate criteria for defining LOCAs could have improved the representativeness of the LOCAs that we defined in survey.

64 Attema et al. 2020, 44–50; Knodell et al. 2023, 303.

Chapter 4
Outcomes and Prospects

The work of the Eastern Korinthia Survey between 1997 and 2003 resulted in a number of concrete outcomes in the decades following its completion. Among the most important was a series of offshoot projects that examined individual sites and generated a richer record of settlements in the region. The study of sites together with a broad analysis of artifact distributions and other historical evidence, have in turn expanded, revised, and overturned established narratives about the Corinthian past. The project also made a modest contribution to the wider scholarship of Greek survey methods through subsequent archaeological fieldwork and publication. Collectively this varied research has resulted in a rich scholarship that includes three dissertations, four books, and over sixty articles that document major discoveries and reflect the individual interests of the survey team (Appendix I).

As important as this work has been, there remain significant gaps that invite further study, especially the comparative distributional analysis of all periods of the survey. In this chapter, I provide a concise summary overview of the results of the survey over the last two decades in terms of next-generation studies of the landscape, interpretations of Corinthian history, and survey methodology. This discussion serves the immediate purpose of outlining some of the intellectual products of the survey and fleshing out the bibliography listed at the end of the chapter while also pointing to gaps in coverage. My aim in one respect is to underscore some of the project's success stories in order to balance the perception, noted in the last chapter, that limited coverage was detrimental. In another respect, I hope to urge readers to identify areas that might reward further analysis. This overview, centered on

Figure 4.1. Walls across the Maritsa Pass on Mount Oneion in 2000 (published in Caraher and Gregory 2006). Photo from EKAS Archive.

Figure 4.2. Apostolos Sarris conducting geophysical survey at a LOCA near Kromna in 2002. The technical report of these investigations is available for download at Open Context. Photo from EKAS Archive.

the meaning of surface scatters in particular, should show the fruitfulness of distributional approaches and multi-component surveys, and thereby encourage ongoing analysis of all survey data.

4.1. Mapping the Corinthia: Next-Phase Investigations

The high-resolution, multi-modal survey of the eastern Corinthia revealed an impressive array of previously unknown artifact scatters, features, and buildings that resulted in subsequent study and fieldwork in the form of "spin-off" projects investigating specific periods or sites.[1] On the Isthmus, the study of the multi-period settlement of Kromna east of Examilia village led to novel interpretations of a shifting zone of habitation marked by a complex history related to the Examilia Quarries, roads, walls, and markets in the district (Section 4.2.2).[2] Other locations of later study included the fields below Rachi Boska and the district of Kesimia east of Kromna (both associated with ancient and medieval materials);[3] geophysical survey (magnetometry and resistivity) in both locations in 2002 bore mixed results but revealed buried architecture.[4] The study of remains on the Maritsa Pass of Mount Oneion recorded and published Late Classical–Hellenistic and later Venetian fortifications.[5]

The most extensive next-generation project on the Isthmus was the Kenchreai Cemetery Project, a work initiated and directed by Joseph Rife that grew out of his work through EKAS and a wider study of Corinthian mortuary landscapes.[6] The project began in 2002 as an exploration of Roman chamber tombs, graves, and structures on the Koutsongila Ridge above the harbor. Initially incorporating a systematic survey and study of architecture, wall paintings, and surface debris,[7] it later adopted a program of excavations involving dozens of students and specialists in partnership with the Greek Ministry of Culture (2007–2014). It has resulted in a rich contextual study of mortuary space and settlement at a Roman harbor from the period of the earliest foundation of the colony to the latest centuries of antiquity.[8]

Since the project's completion, scholars have carried out subsequent investigations related to additional sites on the Isthmus including Roman villas, Hellenistic–Early Roman agricultural installations, early modern cemeteries, the colony of Washingtonia, and World War II installations (see below: Section 4.2). Others have reconstructed the diachronic history of settlement on the Isthmus by making use of survey data and have implemented high-resolution drone surveys of the

Figure 4.3. The author at a Roman chamber tomb at Bourtzi east of Kenchreai harbor and Koutsongila during the survey of Discovery Unit 1140 in the year 2000. Photo from EKAS Archive.

Figure 4.4. Lychnari Bay on the Saronic Gulf coastline, viewed from Lychnari Tower to the west. Photo by author.

Figure 4.5. A field team measuring ancient rubble piles at Kato Vayia (LOCA 9035), later published in Tartaron, Rothaus, and Pullen 2003, and Tartaron, Pullen, and Noller 2006. Photo courtesy of Daniel Pullen.

landscape with drone photography.[9] Virtually all of these investigations have evolved out of a multi-modal study of the region that has included but not been limited to the record of distributional survey.

In comparison with the central corridor nearest Corinth, EKAS fieldwork was much more limited in the southeastern Corinthia,[10] but survey there led to some of the most important next-phase investigations. Almost every area of the southeastern Corinthia intensively surveyed in 2001–2003 has been subject to subsequent study. The earliest work focused on the district of Kato Vayia near the harbor at Lychnari, with its important Early Helladic II remains, as well as the neighboring hill of Ano Vayia, with its Classical-Hellenistic farmstead.[11] Research on the early modern settlement at Lakka Skoutara has also generated publications about this semi-village settlement that was usually occupied seasonally, occasionally on a more permanent basis.[12]

The study of prehistoric remains near the modern harbor of Korphos at the extremities of EKAS territory clearly marks the most important next-phase project in the southeastern Corinthia.[13] Directed by Daniel Pullen and Thomas Tartaron, the Saronic Harbors Archaeological Research Project (SHARP) has focused on the submerged Mycenaean harbor and settlement at Kalamianos,[14] as well as other prehistoric sites in the area. Systematic survey and study of the architecture within its coastal district between 2007 and 2010 extensively documented a hitherto unknown major Mycenaean port town and harbor. While the prehistoric remains have been the central focus, Pullen and Tartaron have collaborated with others to study the history and environment of these sites through integrative interdisciplinary diachronic study and intensive distributional methods.[15] I will discuss the results of that work further below.

4.2. Rewriting Corinthian Histories

Besides spin-off projects and next-phase investigations, scholars have studied archaeological sites of the territory, their architectural remains, and distributional survey data to advance new interpretations about specific periods of Corinthian history, especially the Bronze Age (in the southeastern Corinthia), the Roman era, and the medieval and post-medieval eras. At the same time, some periods remain understudied today and warrant further analyses and attention.

Figure 4.6. Planning at the Isthmia Dig House for a next-phase project at the site of Kalamianos after its discovery through a geological survey in 2001. Photo courtesy of Daniel Pullen.

4.2.1. Prehistoric Corinthia

For the Prehistoric era (6700–1050 BC),[16] scholars have made the most important contributions in their study of coastal sites of the southeastern territory, especially the Early Helladic II site at Kato Vayia and Mycenaean Kalamianos. One of the most common themes of these studies is a fundamental rethink of center and periphery. Whereas scholars traditionally debated how the palatial kingdom of Mycenae controlled Corinth and its northern Corinthian plain,[17] Pullen and Tartaron have emphasized instead the "coastscapes" of the Saronic Gulf for understanding the political,[18] economic, and cultural interactions of the Corinthia in the Late Bronze Age.[19] In this radical revisioning, maritime sites in the Saronic—Bronze Age Kolonna on Aegina, for example—were more influential than Mycenae in respect to the vitality of Corinthian coastal sites of Vayia,[20] Vassa, and Kalamianos. In a maritime network view, the Corinthia in the Late Bronze Age "was not a center....[but] a political periphery, contested by competing polities" at

Mycenae and Kolonna.[21] This reimagining of the prehistoric Corinthia is a result of the discoveries made by the geoarchaeology team as they investigated probable coastal locations.

Discussions of Prehistoric distributional data in the survey, on the other hand, are scarce, and greater attention will be needed to tease out the subtleties of change over time. Distributional analysis has formed a small part of the archaeological study of the sites of the southeastern territory and an even smaller part of the study of the Isthmus.[22] Pullen and Tartaron have argued that Prehistoric settlement patterns on the Isthmus in the long-term were nucleated and stable, with multiple phases of occupation located on marine terraces at scattered mid-sized sites such as Gonia, Yiriza, Perdikaria, Aetopetra, Isthmia and Rachi, and Korakou.[23] Some of these sites were inhabited as early as the Neolithic, most by the Middle Bronze Age, and all by the Late Bronze Age. Occupational continuity and absence of hierarchical settlement structures on the plain may explain why the Corinthia never developed a centralized palace that is common to other Mycenaean regions. Nonetheless, more research is needed to tease out the distinct patterns of narrower periods (Section 11.2) and to determine whether other kinds of sites (like small farms) were present during the Bronze Age.

4.2.2. Protogeometric–Hellenistic Corinthia

The publication of Protogeometric-Hellenistic period (1050–31 BC) materials from the survey has been more scattered and piecemeal than those of the Prehistoric periods.[24] The two most substantial articles about the Classical-Hellenistic period published the fortifications discovered during survey. One study by Caraher and Gregory identified previously-unknown modest fortifications, a fortress and two shield walls, in the broad saddle of the Maritsa Pass on Mount Oneion and recorded fragmentary architecture to the east.[25] Traces include rough-cut stone walls with rubble fill and ceramic objects such as Classical-Hellenistic tiles, storage vessels, and kitchen wares. The complex of walls and enclosures, they argued, was designed to control access into the Peloponnese from the north. The second published study, this one by Caraher, James, and me, discussed a complex of Classical-Hellenistic fortification walls and towers surrounding Lychnari Bay on the Saronic Gulf. We identified a fortified farmstead and circular tower at Ano Vayia, a collapsed circular tower at Lychnari, and linear rubble walls at Kato Vayia.[26] Like the fortifications over Mount Oneion, the ceramic remains indicate a short-duration fortified settlement of fifth to third century date that formed part of a regional network of places for

Figure 4.7. Remains of the Classical–Hellenistic farmstead site at Ano Vayia (LOCA 9156). Photo by author.

Figure 4.8. Mapping and study of the Classical–Hellenistic farmstead site at Ano Vayia (LOCA 9156). Photo by Kate Pettegrew.

Figure 4.9. Boulder remains of Lychnari Tower, a Classical–Hellenistic tower in the southeast Corinthia (LOCA 9233). Photo by Bill Caraher.

Figure 4.10. The remains of Hellenistic–Roman olive press equipment at Kromna (LOCA 9132). Cf. Figure 5.10. Photo from EKAS Archive.

defending territory and routes. Both discoveries have helped to clarify aspects of Corinthian fortification strategies usually bypassed in scholarship that is centered on the trans-Isthmus wall and Hexamilion,[27] and have drawn attention to an entirely new layer of information related to the priority of regional defense in the Classical-Hellenistic period.

Scholars have not yet produced a comprehensive overview of the distributional survey data related to the Protogeometric–Hellenistic eras but have made progress in disentangling the continuous carpet of artifacts on the Isthmus.[28] Some of this scholarship has focused on the meaning and interpretation of surface debris and architectural members around the site of Kromna, a settlement situated amidst marine terraces, limestone quarries, and good agricultural resources at the junction of roads from Corinth, Kenchreai, and Isthmia (Section 2.3). In the project's methodological report, for example, Tartaron et al. sought to disentangle the dense continuous carpet into a series of functional layers, highlighting the complexities of the area that included industrial, domestic, religious, and mortuary signatures.[29] Caraher, Nakassis, and I likewise adopted Kromna as a test case study in artifact-level analysis, disentangling the carpet of the district to foreground the changing densities of artifacts. This approach variously layered and bundled assemblages and highlighted more nuanced patterns of spatial distributions, as well as subtle chronological patterns, in ways that exceeded Wiseman's original study of Kromna.[30] Recently I have worked to contextualize Kromna in its later Classical–Hellenistic phases in light of a broader topology of landscape centered around the logic of defense. In this view, Kromna evolved in relationship not just to the Examilia Quarries in this area but also to the Classical and Hellenistic trans-Isthmus wall: Kromna was the community that grew up at a major gateway in a regional fortification system.[31]

These studies highlight the positive outcomes of a layered approach to reading the artifact-rich environments of the Corinthia and invite further study. Indeed, the fruitfulness of disentangling chronological layers of survey data prompted my own historical study of the Isthmus from Archaic times to the Late Roman period.[32] While I had originally attempted to research and write that work through a composite topographic approach that analyzed the region primarily in terms of its major places (e.g., Kenchreai harbor, Lechaion harbor,[33] Corinth), the very process of interpreting the distributional assemblages in EKAS encouraged me to look at the ways these places changed through time. That led to interesting new insights about the historical evolution of the topology of the Isthmus—insights that argued against essentializing,

Figure 4.11. The author above a staircase marking entrance to a Roman chamber tomb along the Corinth-Isthmia road near Kromna. Photo by Kate Pettegrew.

timeless views of major places (like Kenchreai harbor and Isthmia) or features (like the diolkos and the trans-Isthmus wall) from Archaic to late Hellenistic times.[34] If anything, the fruitfulness of such analysis invites fuller attention to the distributional data of individual periods before the Roman era.

4.2.3. Roman Corinthia

The Roman material (31 BC–AD 700) investigated as part of the EKAS project is relatively well-published although most work has focused on specific sites or the remains on the Isthmus.[35] As noted above, Rife and his colleagues have intensively documented the harbor at Kenchreai and the community who lived there.[36] Indeed, a new volume by Korka and Rife, which is dedicated to the results of their excavation, has made Kenchreai one of the best-recorded Roman harbor settlements in the Mediterranean.[37] Moreover, we know more about the wider settlement patterns and villas surrounding Kenchreai harbor through summary overviews of survey data for the Early and Late Roman periods.[38]

The layered studies of Roman distributional patterns in EKAS have drawn attention to the nature of an intensive settlement system that favored the Isthmus over rural settlement elsewhere. Importantly, these studies have overturned an older narrative/assumption that settlement during the Roman period was nucleated, centered in large settlements such as Corinth, Kenchreai, and Lechaion. In examining the pattern of distributions of Early and Late Roman ceramic remains,[39] I have argued that the primary Roman settlement pattern consisted of extensive peri-urban zones characteristic of large cities in the Roman Empire,[40] that settlement intensified over the Roman era, and that a high degree of continuity exists between *Early Roman* and *Late Roman* on the one hand, and *Late Roman* and *Early Medieval* on the other.[41] The relative abundance of *Early Roman* materials marks the Isthmus as different than the typically sparse Greek landscapes of *Early Roman* date.

Other studies have considered EKAS data alongside other historical interpretations of the Roman Corinthia. Bill Caraher, for example, has noted that the frequency of fine table wares of the sixth century AD on the Isthmus suggests "changes in the local settlement and consumption patterns by local residents" that mark new investments in the region during a period of direct imperial intervention during the reign of Justinian.[42] Timothy Gregory has used EKAS data to present positive evidence for a thriving countryside in the broad Roman era and to identify likely sites of villas and late antique churches.[43] Caraher and I have integrated Roman data into historical interpretations of city and countryside in the first–seventh centuries focusing on regional connectivity, agricultural production, networks of trade, fortification systems, and religious change.[44]

Although there are more published works detailing the Roman period in EKAS than about other periods of survey, more work could still be done to compare data of the countryside to other published Roman sites of the territory and other parts of Greece. Moreover, the physical remains of Roman date stored at the excavation house at Isthmia invite further study in light of ongoing finetuning in ceramic studies.

4.2.4. Medieval Corinthia

The major discovery of EKAS related to the Medieval to Ottoman period (AD 700–1800) was a barrier wall of Second Venetian date across the Maritsa Pass on Mount Oneion,[45] which forms a pair with another previously published wall at the Stanotopi hilltop to the east.[46] Walls at both passes made use of roughly cut stones, interior rubble cores, and exteriors that were smoothed and tapering toward the top. The fortifications feature square towers, bastions, and interior fighting platforms. While investigators found little pottery at Stanotopi or Maritsa, Caraher and Gregory argued that the construction style is consistent with a building of Second Venetian period and was designed to protect against Ottoman invasion over Mount Oneion into the Peloponnese.[47] These monuments left little in terms of ceramic scatters in the landscape, but their presence demonstrates that the region remained a pivotal geopolitical sphere in this period.

Other scholarship of the long Medieval period has focused on interpreting the trace artifacts documented during survey.[48] For the Early Byzantine centuries, I have shown that rural settlement at the end of antiquity was not universally abandoned but persisted in some cases into the twelfth century and beyond.[49] In respect to later Byzantine centuries, Gregory summarized the evidence of cultural material alongside other kinds of evidence such as texts, toponyms, churches, and forts, concluding that the scant artifacts point to a pattern of nucleated settlement.[50] Settlement patterns may have been generally nucleated over the Medieval period, but further analyses of specific periods and smaller sites are necessary. For example, Caraher, Nakassis, and I examined the *Late Medieval* to *Ottoman* scatters in the Corinthia as a case study in the analysis of distributional data and showed that more sophisticated tools such as aoristic analysis and nearest-neighbor analysis may be employed to identify smaller settlements unrelated to large villages.[51] My recent study with Bill Caraher of Byzantine ceramic distributions has suggested a significant degree of continuity generally across the Byzantine period and some measurable expansion of smaller sites during the *Late Medieval* era.[52]

The study of the Medieval period, then, has demonstrated the value of an approach that layers artifact distributions alongside other kinds of evidence (e.g., the walls). A site-based approach to the Medieval period would not produce strong signatures, but artifact-level analysis presents the opportunity to see patterns in less visible eras (cf. Section 12.5). More work is also clearly necessary to study the survey data and collected objects of medieval date in light of other evidence such as excavated contexts from Corinth and Isthmia, cartographic sources, and the fragmentary textual record.

4.2.5. Modern Corinthia

The major studies of the Modern period (AD 1800–2000) in EKAS have explored features and communities rather than distributional survey results.[53] Lita Tzortzopoulou-Gregory's study of the mortuary landscapes of the eastern Corinthia from 2001–2004, for example, documented over a thousand graves in nine cemeteries in the villages of Examilia, Xylokeriza, Kechries, and Kyras Vrysi. Her studies and

Figure 4.12. The ruins of an abandoned house in the valley of Lakka Skoutara. Photo by author.

Figure 4.13. Bill Caraher holds an early modern tile in the remains of a house in the valley of Lakka Skoutara. Photo by author.

Figure 4.14. Bill Caraher and Lita Tzortzopoulou-Gregory stand near olive press equipment in the valley of Lakka Skoutara. Photo by author.

Figure 4.15. An abandoned threshing floor (aloni) in the valley of Lakka Skoutara. Photo by author.

Figure 4.16. The mouth of a cistern in the valley of Lakka Skoutara. Photo by author.

Figure 4.17. A concession stand brought into and parked in the valley of Lakka Skoutara in 2017. Photo by author.

publications have considered the contingent and ephemeral aspects of commemoration, the gendered spaces of cemeteries, and the intersections of national, regional, and household forces in creating Greek identities in the Corinthia.[54] The fact that commemoration of Corinthian graves was typically short (median length: 18 years) and the reuse of other families' plots frequent signals a response to modern population pressures.[55] This work provides an important example of a new interest in applying systematic archaeological methods to the most recent periods of Greece's history.

EKAS researchers have also studied the dynamics of the Early Modern refugee colony of Washingtonia (cf. Ch. 14) and the modern settlement of Lakka Skoutara.[56] In respect to the latter, systematic study of the valley recorded a dozen houses in various states of preservation and abandonment, a central church, threshing floors, bake ovens, resin pits, and buried cisterns. The survey of 30% of the valley's arable land and the collection of oral testimonies have provided evidence of how an agricultural settlement of villagers from Sophiko developed and changed in connection with nineteenth and twentieth century global forces.[57] This long-term work in the valley through periodic study and revisits over the last two decades has revealed a fluid landscape of habitation and abandonment.[58] The work supports broader trends that push for understanding modern Greek landscapes on their own terms.[59] It also establishes a rich point of comparison for understanding earlier periods.

Yet the study of the modern period in the Corinthia requires significantly more research (see Ch. 12). A full account of the distributional survey data needs to be placed alongside a comprehensive study of a wide range of evidence for the region as it developed within a new nation state. An abundant variety of historical maps, aerial photographs (from the 1940s), government tax documents, traveler accounts, archival materials, and textual sources are available for unlocking the transition from late Ottoman to early modern times, as well as the rapid development of the landscape in the later twentieth century.

4.3. Expanding Methods in Mediterranean Landscape Archaeology

The work of EKAS has also made direct contributions to discourses surrounding methods and meanings in Mediterranean landscape archaeology. The project's initial synthetic report presented a comprehensive overview of the project's integrative interdisciplinary methodology, artifact-level techniques, and settlement patterns in the eastern Corinthia.[60] The authors' argument for the value of intensive and integrative approaches, and their discussions of siteless survey methods, the chronotype system, archaeological collaboration, and geomorphology, have been cited in broader discussions about methodology in landscape archaeology. The integrative design of survey has become an essential best practice in regional survey today.[61]

Other publications have tackled single aspects of the project's methodology. The environmental methods used to discover the EH sites at Kato Vayia and Vassa, as well as the site at Kalamianos, were themselves innovative in adopting probabilistic modeling using variables such as spatial analysis of slope, water resources, fetch, and arable land, among others; the identification of potential locations in the coastline for locating prehistoric harbors led directly to discoveries.[62] In another respect, the recording of submerged beachrock and tidal notches and the assessment of foraminifera (marine microorganisms) through core samples in wetland environments were important for reconstructing prehistoric coastlines and dating tectonic events.[63] Likewise, attention to the vertical channels (*rillenkarren*) streaking down limestone blocks at Kato Vayia allowed Tartaron, Pullen, and Noller to interpret enormous stone piles, walls, and dissolved limestone bastions as contemporary with the nearby concentrations of *Early Helladic II* pottery rather than with deposits of recent field clearance.[64]

Several articles have evaluated the project's distributional survey methods and data. In an essay about siteless survey, Caraher, Nakassis, and I argued that data-driven approaches and fine-grained views open up horizons for identifying invisible periods and addressing major questions about the transformations of civilizations and cycles of demographic expansion and contraction.[65] Other pieces have studied the character of surface assemblages and the importance of "source criticism," especially in respect to the uneven visibility of different periods. My study of the assemblages of Roman date underscored the analytical value of data-centric and geospatial approaches for reading landscapes in light of differential visibility of periods.[66] Future studies outlining distributional patterns will offer more sensitive interpretations of survey data in detailing the diachronic use of the landscape.[67]

It is important to note, too, that the diaspora of the project's team has exported EKAS methodology to regions beyond the Corinthia. Two projects stand out for their similarity of survey technique, distributional mapping, geomorphological assessment, and diachronic frameworks. The Pyla-*Koutsopetria* Archaeological Project (2003–2011) adapted siteless methods to a buried coastal town on the eastern side of Larnaka Bay where dense ancient remains stretch across some 40 ha of the plain.[68] Our diachronic survey there used small survey units (average 2,100 m^2) to cover an area of 100 hectares (1 km^2), employed chronotype collection, and undertook archaeological experiments to test the quality of data. The Western Argolid Regional Project (WARP) adapted EKAS methods at the scale of an entire region: the Inachos River Valley northwest of Argos.[69] A larger survey force, combined with the lower-density character of the landscape, allowed WARP teams to adopt a strategy of total collection (rather than chronotype collection) of all pottery and lithics and to cover all walkable territory (18.33 km^2) of the region.

These essays certainly do not exhaust the productive output of EKAS archaeologists as it relates to archaeological methods and interpretations. Research has also contributed directly to a substantial body of scholarship on the chronotype sampling strategy, experimental survey, and the archaeology of modern period, all of which have shaped various discourses about survey method and landscapes.[70]

01100010 01110010 01100101 01100001 01101011

The preceding overview provides a window into the variety of the last two decades' publications, projects, and scholarship that have resulted directly or indirectly from the survey of the eastern Corinthia. My overview of subsequent work has pointed to some of the kinds of work that has been done and can be done with different layers of survey data now available through Open Context. Still, this overview has highlighted the uneven character of data and publications analysis to this point—each reflecting the unique interests of project personnel. This book attempts to correct for some of this unevenness by providing a general introduction to the assemblages and broad patterns of the survey while also encouraging others to carry out their own studies of the settlement and materials of the eastern Corinthia. To understand the project's complex datasets, however, we must move beyond simply the history of fieldwork and describe more carefully the specific methods adopted in the Eastern Korinthia Archaeological Survey.

Endnotes

1 The overview here will be cursory and leave more detailed discussion of results for Section 4.2. On the concept and value of "spin-off" projects, see Gregory and Tzortzopoulou-Gregory 2020, 521–522.

2 See Wiseman 1978, 66–68, with evolving reassessments, based on EKAS data, in Tartaron et al. 2006, 494–513; Caraher, Nakassis, and Pettegrew 2006, 14–21; Pettegrew 2006, 248–262; Pettegrew 2016, 82–87. Examilia Village (https://www.geonames.org/262558/examilia.html), Examillia Quaries (https://www.geonames.org/12514055/examilia-quarries.html), and Isthmus (https://pleiades.stoa.org/places/570317).

3 Kesimia: https://www.geonames.org/12514083/kesimia.html

4 Publication of that survey is limited to the original field report (Sarris 2003) and a brief summary in the preliminary report (Tartaron et al. 2006, 461–462).

5 Caraher and Gregory 2006.

6 Tartaron et al. 2006, 461; Rife et al. 2007, 147n5.

7 Rife et al. 2007.

8 Korka and Rife 2013, 2022.

9 For Washingtonia, see Kourelis and Pettegrew 2021; Pettegrew et al. 2024. Albert Sarvis and I carried out drone survey of the Isthmus in 2017, 2018, and 2023.

10 Corinth Central Corridor (https://pleiades.stoa.org/places/570317) and Corinth (https://pleiades.stoa.org/places/570182).

11 https://n2t.net/ark:/28722/k2514bh8r

12 Ano Vayia and Kato Vayia: Tartaron, Rothaus, and Pullen 2003; Tartaron, Pullen, and Noller 2006; Caraher, Pettegrew, and James 2010. Lakka Skoutara: Tzortzopoulou-Gregory 2008a, 2008b, and 2010; Pettegrew and Caraher 2021.

13 Korphos (https://www.geonames.org/259310/korfos.html)

14 Kalamianos (https://pleiades.stoa.org/places/458012868)

15 Among others, see Pullen and Tartaron 2007; Tartaron 2010; Tartaron et al. 2011; Tartaron and Pullen 2013; Pullen 2013; Pullen 2015; Pullen 2019a and 2019b.

16 https://n2t.net/ark:/28722/k2qj7vk08

17 E.g., Salmon 1984; Rutter 2003; Mycenae (https://pleiades.stoa.org/places/570491).

18 Saronic Gulf (https://pleiades.stoa.org/places/570654)

19 Pullen and Tartaron 2007, 152.

20 Vayia (https://www.geonames.org/9409078/vayia.html)

21 Pullen and Tartaron 2007, 146.

22 Pullen and Tartaron 2007; Tartaron 2015a and 2015b. An unpublished conference paper presented a cursory analysis: Pullen et al. 2002.

23 Gonia (https://www.geonames.org/12514037/gonia.html), Yiriza (https://www.geonames.org/12514036/yiriza.html), Perdikaria (https://www.geonames.org/12514081/perdikaria.html), Aetopetra (https://www.geonames.org/12514030/

aetopetra.html), Isthmia (https://pleiades.stoa.org/places/570316), Rachi (https://www.geonames.org/12514078/rachi-settlement.html), and Korakou (https://pleiades.stoa.org/places/312809379)

24 https://n2t.net/ark:/28722/k2ks74r5d

25 Caraher and Gregory 2006.

26 Caraher, Pettegrew, and James 2010. Ano Vayia (https://www.geonames.org/12514006/ano-vayia.html)

27 Hexamilion (https://pleiades.stoa.org/places/242076354) and Trans-Isthmian Wall (https://www.geonames.org/12514074/trans-isthmus-wall.html)

28 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d)

29 Tartaron et al. 2006, 494–513.

30 Caraher, Nakassis, and Pettegrew 2006, 14–21.

31 Pettegrew 2016, 82–86.

32 Pettegrew 2016.

33 Lechaion Harbor (https://pleiades.stoa.org/places/570420)

34 Pettegrew 2016, 47–88, 109–110; diolkos (https://pleiades.stoa.org/places/570198).

35 Roman (https://n2t.net/ark:/28722/k2b85q477)

36 Rife et al. 2007.

37 Korka and Rife 2022.

38 Pettegrew 2015; 2016, 202–204.

39 Pettegrew 2007; Roman (https://n2t.net/ark:/28722/k2b85q477).

40 Pettegrew 2015.

41 See Pettegrew 2010, and Pettegrew and Caraher, 2025, for the relationship of the Late Roman and Byzantine landscapes. *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g).

42 Caraher 2013, 157.

43 Gregory 2010; 2013a, 278–283.

44 Pettegrew 2011, 560; Pettegrew 2016; Caraher and Pettegrew 2016; Pettegrew and Caraher 2025. For a recent synthesis of the countryside in the Early Roman period, see Caraher, forthcoming; Roman (https://n2t.net/ark:/28722/k2b85q477).

45 Caraher and Gregory 2006, 347–354; Medieval to Ottoman Period (https://n2t.net/ark:/28722/k26m3pq5x).

46 Stanotopi (https://www.geonames.org/12514051/stanotopi.html)

47 Peloponnese (https://pleiades.stoa.org/places/570577?searchterm=peloponnese)

48 Medieval Period (https://n2t.net/ark:/28722/k26m3pq5x)

49 Pettegrew 2010, 224–226.

50 Gregory 2007 and 2013b, 301–304.

51 Caraher, Nakassis, and Pettegrew 2006, 26–34; cf. Gregory 2007. *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v) and *Ottoman* (https://n2t.net/ark:/28722/k2tb1j606).

52 Pettegrew and Caraher, 2025.

53 Modern (https://n2t.net/ark:/28722/k2g16dz03)

54 Tzortzopoulou-Gregory 2008a, 2008b, and 2010.

55 Tzortzopoulou-Gregory 2010.

56 For Lakka Skoutara, see Caraher and Diacopoulos 2004; Diacopoulos 2004; Caraher et al. 2009; Pettegrew and Caraher 2021. For Washingtonia, see Kourelis and Pettegrew 2021; Pettegrew et al. 2024.

57 Diacopoulos 2004; Caraher et al. 2009; Sophiko (https://www.geonames.org/253494/sofikon.html).

58 Caraher and Diacopoulos 2004; Pettegrew and Caraher 2021.

59 For a related project, see Erny and Caraher 2019. The archaeology of modern Greece has become an important field of study in recent years. See essays in Sutton 2000; Diacopoulos 2004; Gallant 2018; Gerstel 2020; Seifried and Stewart 2021.

60 Tartaron et al. 2006.

61 Attema et al. 2020, 30–38; Knodell et al. 2023.

62 Rothaus et al. 2003; Tartaron, Rothaus, and Pullen 2003.

63 Tartaron, Rothaus, and Pullen 2003; Nixon, Reinhardt, and Rothaus 2009.

64 Tartaron, Pullen, and Noller 2006; Early Helladic II (https://n2t.net/ark:/28722/k2891n248).

65 Caraher, Nakassis, and Pettegrew 2006.

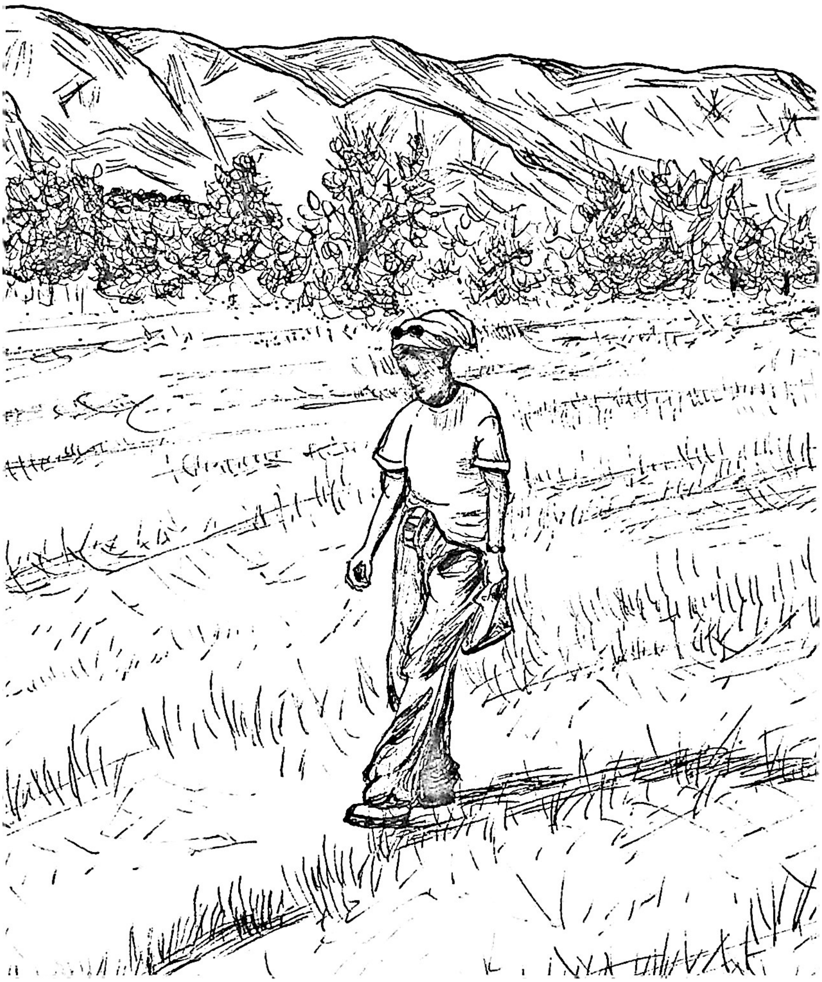
66 Pettegrew 2007. Cf. Pettegrew 2008, 2010, and 2015.

67 Caraher and Pettegrew 2014.

68 Pyla-*Koutsopetria* Archaeological Project (https://opencontext.org/projects/3F6DCD13-A476-488E-ED10-47D25513FCB2) and Larnaka Bay (https://pleiades.stoa.org/places/707556)

69 Gallimore et al. 2017; WARP (https://doi.org/10.6078/M7JS9NH8), Inachos River Valley (https://pleiades.stoa.org/places/570313), and Argos (https://pleiades.stoa.org/places/570106)..

70 Chronotypes: Gregory 2004; Moore 2008; Caraher, Nakassis, and Pettegrew 2014. Experimental Survey: Schon 2002, 2011; Pettegrew 2014. Modern Survey: Diacopoulos 2004.



Chapter 5
Distributional Methods

The Eastern Korinthia Archaeological Survey was a bridge between older second-wave survey projects and newer, information-centric approaches to Greek survey.[1] The project sought to locate sites like any other survey project of the 1980s or 1990s. Yet, in its embrace of distributional methods and computing platforms, EKAS recorded scatters of artifacts, features, and environmental data within a geospatial framework. The adoption of data-centered and multi-modal survey approaches opened pathways to evaluating space, time, and function of landscapes according to the object layers and various features, but also created new challenges of analysis and interpretation.

The next two chapters outline essential elements of survey methods, practices, and products that are designed to give readers the necessary equipment to understand and critique the published online data at Open Context.[2] I begin here with a methodologically transparent review of the distributional frameworks for sampling, discovering, and recording information, focusing on the most important elements of survey that generated archaeological data.[3] Chapter 6 will describe a different kind of cultural record that EKAS made in the landscape: the Localized Cultural Anomalies. My emphasis on distributional survey data—the constituent layers of our activities and discoveries—will foreground the relationship of evidence and practice by showing how particular kinds of method have produced specific sets of data.

Figure 5.1. Two very different kinds of Discovery Units in the littoral environments of Kenchreai: a grain field on a high plateau and the eroded, rugged and rocky slopes. Photos by author.

Figure 5.2. Surveying a unit in a gulley on the slopes of Mount Oneion in 1999. Photo by author.

5.1. Surveying Space: Discovery Units

The Eastern Korinthia Survey favored an intensive and systematic approach to examining territory through pedestrian survey and more intensive gridded collection. The project occupied the divide between the newer techniques of distributional or siteless survey and traditional methods of documenting sites in the landscape (Section 2.4 and 3.1).

5.1.1. Standard Discovery Units

Our building blocks for investigation, collection, and recording were small Discovery Units (DUs), so named to indicate their role in characterizing the complex variation in artifact patterns over the landscape and defining Localized Cultural Anomalies (Ch. 6). DUs came in different shapes and sizes according to the criteria of changing geomorphic conditions, visibility differences, land use, and property boundaries (Figures 5.1 and 5.2).[4] EKAS was hardly the first project in Greece to survey the landscape using "tracts," but the priority of geomorphic and environmental considerations (Section 5.3) meant that units as a whole typically covered less than 2,000 m^2 in area (median: 1,968 m^2; mean: 2,895 m^2), about half the size of an American football field, and significantly smaller than the typical tract size of earlier surveys.[5]

Figure 5.3. This aerial view of Kromna and Perdikaria provides perspective on the range of Discovery Unit shapes and sizes overlaying the natural landscape. Note how DU shapes often correspond to larger agricultural fields, sometimes to parts of olive groves. Survey unit boundary lines above are approximate: they do not perfectly match visible field boundaries of aerial photographs because of imperfect digitization at the time of survey (2000) and because land use had changed in a few cases by the time this aerial photograph was captured. This high-resolution image was captured by Professor Albert Sarvis in 2017 as part of UAV survey of the Isthmus.

In the eastern Corinthia, the Discovery Units formed windows into the cultural material present across the landscape. As the methodology report explains,[6] DUs were a tool for detecting patterns, evaluating fluctuating artifact density, characterizing material, contextualizing remains, and identifying "anomalous concentrations of material that may warrant further investigation." In this respect, DUs were a quite different approach to mapping the landscape than the older site surveys that sought to map discernible archaeological "sites" across a region, through a process that typically required site definition, interpretation, and categorization during fieldwork (e.g., is this scatter a "site"?). The use of DUs required no assumptions about the significance or cultural meanings of the kind and quantity of cultural material observed, emphasizing only empirical data collection of artifacts via bounded spatial units.

Discovery Units were the primary tool for collecting the most important systematic data of the project. On the DU form,[7] we recorded a total count of object classes (pottery, tile, lithics, other) based on the sum of all the counts of individual fieldwalkers in the unit, as well as a chronotype sample of observable finds (Section 5.2.2). We also collected a host of other information useful to contextualizing the finds data: the time, place, and location of investigation; procedure (e.g., walker spacing); current land use; factors affecting artifact counts (surface visibility, degree of sherd crusting, and background disturbance); features present; modern materials observed; and qualitative observations that could not be reduced to checkboxes or numbers. The consistent information collected from each survey unit forms the foundation for distributional and database analysis because it enables the comparison of cultural and environmental data across space according to the factors that impact artifact recovery.

The largest group of Discovery Units, which I will refer to as *standard Discovery Units*, adopted standard pedestrian survey methods and collected a consistent set of data as described above.[8] The project surveyed 1,338 standard DUs between 1999 and 2003 covering a total area of 3.87 km^2;[9] these units form the basis for any density and distributional analysis of the EKAS data. These units were on average small, between 2,000 and 3,000 m^2 (mean: 2,895 m^2; median: 1,968 m^2). Most of the standard units (n=1,168, or 87%) fell on the Isthmus within a quadrilateral more or less defined by the modern villages of Examilia, Xylokeriza, Kechries, and Kyras Vrysi, but a small group of standard units fell in three pockets south of the Oneion mountain range at Vigla and Vayia on the northward facing Saronic Gulf coastline between Kato Almyri and Solygeia and at Lakka Skoutara in an inland mountain valley above Korphos.[10]

5.1.2. Non-Standard Discovery Units

EKAS adopted other kinds of Discovery Units to collect data using slightly different methods over an area of at least 2 square kilometers. During the main period of survey, a dedicated but small extensive team carried out systematic survey through 27 Extensive Discovery Units (EDUs) plus non-systematic scouting.[11] The extensive survey was designed to canvas the Corinthian landscape more efficiently than standard tract-level survey in high-density environments. In the EDUs, an extensive survey team gathered the same set of information as standard survey but adopted more variable procedures (e.g., walker spacing) in typically larger units (mean: 13,245 m^2, median: 2,738 m^2).[12] This variability means that extensive survey data cannot be aggregated into density analysis. Yet, because the extensive team made important discoveries at Vayia, Vigla, Lakka Skoutara, and Mount Oneion (cf. Ch. 4), these discoveries add a layer of information for describing land use and settlement in the region.

Field teams used several other kinds of non-standard Discovery Units. The experimental team surveyed 21 Experimental Units in the 2001 field season on the Isthmus covering an additional area of .044 km²; these units were designed to test the chronotype system, and they generated rich artifact remains some of which are stored at the Isthmia Excavation House. A field team in 2003 revisited high-density areas previously surveyed in order to collect additional chronological information for analysis through selective grab samples; these 19 Revisit-Grab units cover .086 km². Teams carried out survey in 5 Features Units (covering .011 km²) to record the features present without sampling or counting artifacts. In 1 tiny "Grab" unit, we sampled Classical–Hellenistic pottery from a deposit in a scarp wall but did not walk transects.[13] While none of these units are comparable to standard Discovery Units and will not factor into my analysis of densities, they add information that I will explore in different ways (Ch. 12).[14]

Altogether, non-standard and standard Discovery Units encompassed an area of 5.1 km². This comprises only a tiny sample (1.5%) of the 350 km² of the eastern Corinthia that made up the project's area of interest, but the sample comprised approximately 7% (4.67 km²) of the total area of the Isthmus between the Corinth Canal and the walls of Ancient Corinth north of Mount Oneion (66.15 km²), the regions defined as the Isthmia and Examilia basins in the published methodology report.[15] It is important to reiterate that areas investigated through Discovery Units do not represent the totality of work of teams and specialists, which included geoarchaeological study of the coastal zones of the Corinthian Gulf and Saronic Gulf,[16] geomorphological mapping of morphostrats and natural features of the territory, modern studies of cemeteries and villages, mapping of known and newly-identified graves, and, in more recent years, low-altitude drone photographs. Considering these other kinds of investigations, the estimate of total coverage used in the 2006 methods article—"a further 20 km² or more"—seems about right.[17]

Figure 5.4. Pedestrian survey north of Mount Oneion. Photo from EKAS Archive.

Figure 5.5. Pedestrian survey in the shadow of Acrocorinth. Photo by author.

Figure 5.6. Daniel Sarefield armed with clicker counters and bags tallies artifacts and samples representative objects in 2001. Photo by author.

5.2. Measuring Human Activities: Counts, Chronotypes, and Features

Field teams collected information about cultural materials present in each unit in three ways. During standard Discovery Unit survey, field teams counted all artifacts, sampled distinct chronotypes, and made a record of features present. These different strategies have produced different kinds of datasets with distinct analytical value in evaluating land use and settlement.

5.2.1. Counts

The project's foundational (albeit, coarsest) index of past human land use and habitation across the EKAS territory was a count of objects recorded on the first page of the Discovery Unit form (cf. Figure 3.9).[18] Fieldwalkers were tasked with recording the number of all artifacts for every 2-meter-wide swath walked in the unit. Looking 1 meter to the left of their line of sight and 1 meter to the right, they used tally counters to count objects of 4 material classes: "pottery," "tile," "lithics" (chipped stone), and "other." The fourth class included everything from glass shards to ground stone tools to marble revetment, mosaic tesserae, metal buttons, and even, in one case, a grenade! Because fieldwalkers were normally spaced 10 meters apart and each examined 2 meters of every ten-meter interval, artifact counts under ideal field conditions (with no vegetation and perfect surface visibility) produce an estimate of the number of objects present in 20% of the unit's surface. EKAS teams counted in total 146,599 objects through standard survey methods between 1999 and 2003.

The sum of each class of objects per unit and the sum total of all objects collectively are the basis for calculating putative artifact density values for each unit (cf. Ch. 9). Those densities provide some basis, however imperfect, for quantifying and comparing varying quantities of artifacts and object classes (pottery, tile, lithics, other). The real value of artifact counts and the density figures that derive from them is to form general impressions of major places of past land use, compare different parts of the territory, and make comparisons with regions elsewhere. They are not reliable for creating a map of all the high-density areas of the territory, let alone generating a complete list of past settlements, but they do indicate spots where particular conditions and processes deposited exceptional numbers of artifacts that were later detected by archaeologists. That, in and of itself, has been a key to unlocking regional interpretations.

Figure 5.7. A sample of mostly Archaic–Roman pottery, tile, loomweights, and millstone fragments from DU 2257 and 2258. Photo by author.

Densities based on walker counts, of course, are imperfect representations of what is on the surface and reflect the contingencies of a host of real-world factors, ranging from vegetation cover to soil conditions and walker effectiveness. Be that as it may, artifact densities, when carefully considered, can still add an important layer of quantitative information about the landscape. In a later discussion (Ch. 9), I will consider some of the ways to correct for and deal with problems of identification and representation.

5.2.2. Chronotypes

EKAS employed chronotypes as a comprehensive system for classifying, sampling, and analyzing artifact types. The Eastern Korinthia Survey was not the first project to sample using chronotypes,[19] but it was an important project in demonstrating this system's utility. Twenty years later, the system has been tested, adopted, and adapted to a range of subsequent surveys and excavations in Greece and Cyprus.[20] I will not repeat all the arguments about the merits of a chronotype system but only summarize a few key takeaways about the sampling in EKAS.

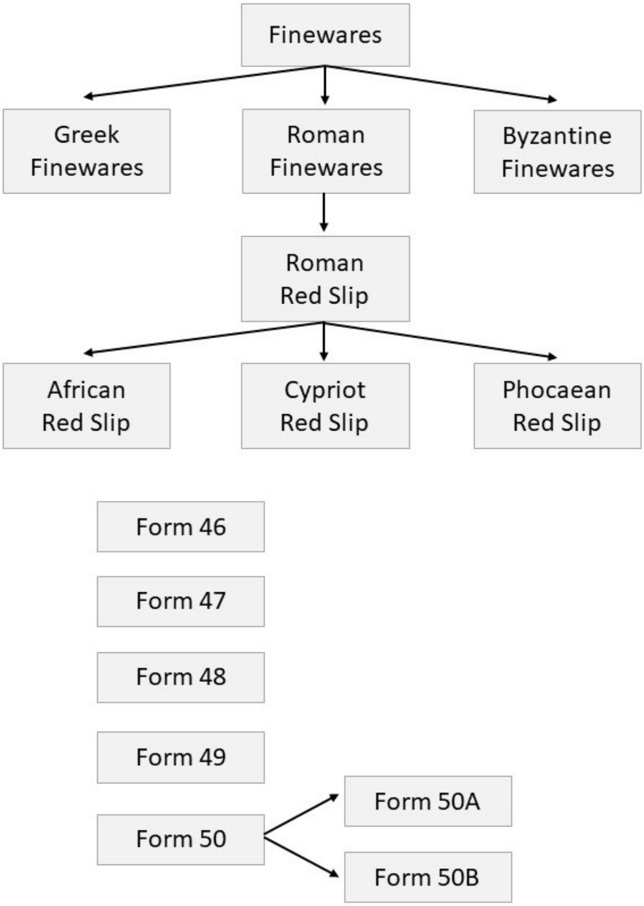


Figure 5.8. The chronotype system is a conceptual framework for classifying and sampling. This schema shows an example of chronotype classification and hierarchy. Image produced by author after Gregory 2004, fig. 2.4.

First, the original chronotype system functions as a way of assigning value to all objects encountered during archaeological fieldwork. Rather than conceptually divide artifact classes into "diagnostics" versus "non-diagnostics" or "feature objects" versus "context material," analysts assigned every artifact to a distinct class (a chronotype) that has functional and chronological value. That is, processing teams always assigned artifacts to chronotypes regardless of how potentially datable the object was or how it was sampled. Every analyzed object in the finds data, therefore, has an associated chronotype definition and associated values of material class (e.g., pottery, glass, stone), fabric (in the case of pottery and tile), extant part (e.g., rim), period, and period dates. Some objects (such as this *Late Roman* African Red Slip Form 99) are narrowly dated and typed, while others (such as this painted *Ancient Historic* Medium Coarse Ware body sherd) are coarsely dated to a period from the early Iron Age to the end of antiquity.[21]

Second, the chronotype system was a sampling method designed to create a representative sample of objects on the surface while leaving most material on the ground.[22] As a survey sampling technique, fieldwalkers were tasked with gathering one example of each unique physical object observed in each survey swath. The system produced a more robust collection than grab sampling (which targets feature sherds) but was not as exhaustive as a total collection strategy. In practice, the chronotype system was effective in saving time and work: field teams picked up only 38,383 objects by sampling chronotypes in 1,282 Discovery Units that were surveyed in a standard way. That number marks a 26% sample of the number of objects (n=145,434) actually counted in those units across the survey region. Put another way, fieldwalkers left 4 artifacts on the ground for every object they flagged or put in their bags for the analysts to examine—and the number of objects actually collected via the chronotype system and taken out of the field was smaller (n=1,360).[23] Less time-intensive than total collection, but more robust than grab sampling, EKAS staff argued that chronotype sampling in EKAS could efficiently "generate an accurate and reliable measure of variety in a given unit."[24] Because the method left objects in the field, it comprised a kind of low impact strategy of assessing artifacts.

Chronotypes were not the exclusive way of sampling artifacts in EKAS, however. We consistently sampled chronotypes in standard Discovery Units,[25] but field teams also at times collected objects through grab samples and total collection (in the case of LOCA gridded investigations).[26] Moreover, as I explained previously (Section 3.2), chronotype samples in the early weeks of survey (1999) were incomplete. The restriction from collecting objects, except in very rare circumstances, required modifications to the planned collection strategy. The express prohibition of moving objects from their location meant that we could not initially remove any ceramic objects from units or even gather them together in a single unit bag: all objects had to be individually flagged at their place of location. Fieldwalkers flagged the most distinct objects, including all feature sherds (rims, bases, handles, necks, and sherds with decoration or surface treatment), tiles with surface treatment or finished edges, lithic artifacts, and other classes of premodern artifacts excluding plain body sherds. We soon found a way to stay true to the permit while meeting commitments to chronotype sampling by bundling unique proximal objects at a common flag (cf. Section 3.2). But the restrictions mean that the 1999 finds data underrepresents true proportions of plain body sherds, tile fragments, and modern artifacts.[27]

The third use of the chronotype—as a system of analysis—is most relevant for reusing the data available at Open Context. Proponents of the chronotype system in its early days underscored its relative value for efficiently and reliably quantifying the variety of artifacts and thinking critically about source material.[28] These early studies emphasized that while chronotype samples may not facilitate a complete quantification of the total count of specific artifact types, they do offer "a coarse yet systematic estimation of relative quantities of artifact types."[29] Fieldwalkers reliably identified enough chronotypes because EKAS encouraged them to pick up artifacts when there was any doubt of whether the object was unique or redundant. These studies argued that fieldwalkers over-identified less diagnostic objects (plain body sherds), which could not be dated with precision, and under-identified artifacts that were particularly identifiable to walkers (e.g., black glazed body sherds)—that "fieldwalkers collected *more* artifact data than was necessary for the resolution of our analysis."[30] In short, the chronotype system could be used most effectively to quantify the diversity of artifact types within a unit.[31]

As I will explore in later discussions (Ch. 11 and Ch. 12), chronotypes have been essential for analyzing artifact assemblages and for understanding the changing character of land use and settlement over time. Chronotype data permit breaking an assemblage or artifact scatter down to constituent elements and layering for analytical purposes. A study of chronotypes, for example, sheds light on relative proportion of fabric classes (e.g., cooking ware, coarse ware, and fine ware), chronological properties, and extant part. While certainly other kinds of sampling strategies have their own value, deconstructing artifact scatters via chronotypes provides a useful way to think about the objects that shape the interpretation of settlement and land use.

5.2.3. Features

In addition to artifacts, surveyors encountered and documented a variety of features across the entire territory ranging in date from the Bronze Age to the Modern period: Early Helladic cairns, Mycenaean retaining walls, Classical-Hellenistic cut stone blocks, Roman agricultural equipment, field walls of early modern date, roads of indeterminate age, modern field houses and threshing floors and wells and dumps, and stone clearance piles of premodern and modern date. A dedicated page of the DU form included a list of features and checkboxes, which recorders marked and assigned to a probable age ("Premodern," "Modern," "Indeterminate," or "Both").[32] The form also included a long-text comments box for specifying dimensions and unique aspects of the features and for making notes. Team leaders also had the option of recording additional notes about a feature in a dedicated field notebook.[33]

As with other procedures, the techniques and data collection developed over time (cp. Figure 5.5 and 5.6). The use of a Modern Sweep form (page 4 of the DU form) in the first year of survey meant that recorders sometimes noted modern features on that page rather than on the dedicated Features page. The 1999 season gave us also a sense of what features would be common in the territory, which led to a revised list of features in the following seasons. These variations had to be reconciled and reintegrated in the process of data refinement (Section 7.1).

Unlike the artifact data, which represents at best case a 20% sample of the unit in ideal conditions, the collection of information on features in theory represents the total coverage of the unit. While one might disagree on the project's identification or dating of individual features, we recorded *all* observable premodern features contained within the survey unit. However, modern features—especially modern houses—are underrepresented in the overall sample because we typically designated standing, still-functioning houses and fenced lots as unsurveyable units; they do not consistently show up in the published data of the survey. All the same, the features data provides another index to evaluate the region's busy territory and the scattered remains of buildings, agriculture, and land use that can be read alongside other evidence.

Figure 5.9. Team member measures a pit feature at DU 1068. Photo from EKAS Archive.

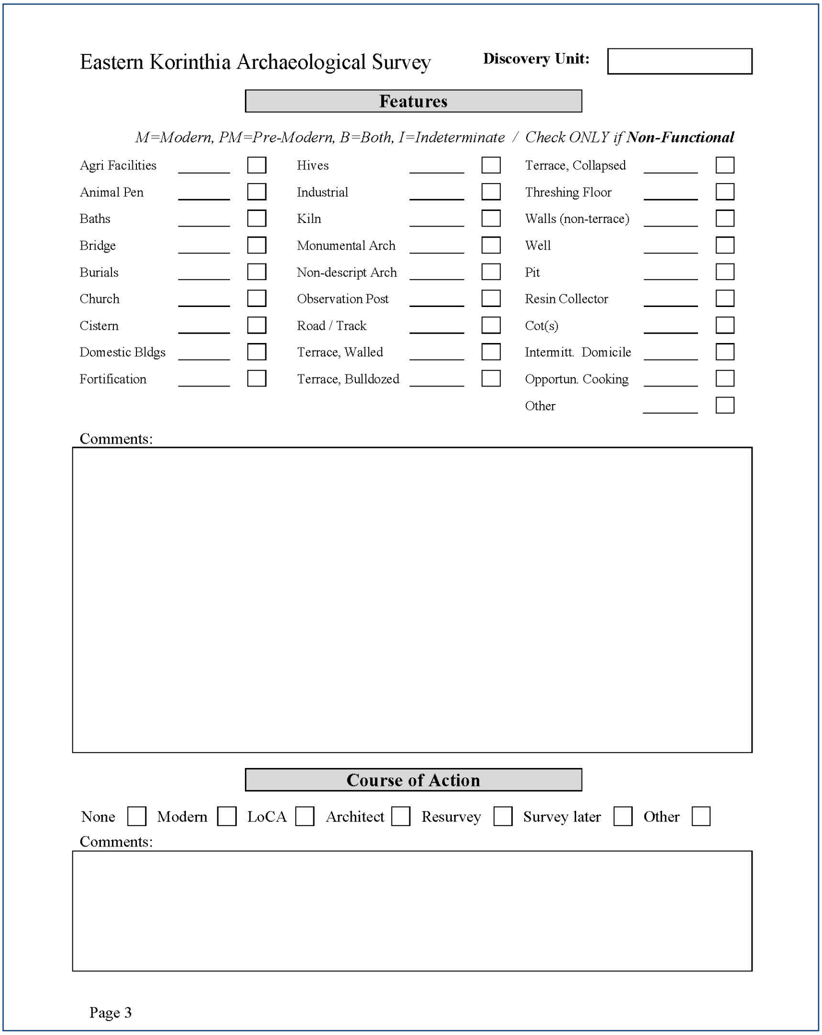
Figure 5.10. Hellenistic–Roman olive press equipment at Kromna (LOCA 9132). Cf. Figure 4.10. Photo from EKAS Archive.

Figure 5.11. Fragment of carved cut stone block at Kromna (DU 1089). Photo from EKAS Archive.

Figure 5.12. Trough cut into limestone at site of Gonia and DU 1761. Photo from EKAS Archive.

Figure 5.13. Large cut stone block with cut dowel hole in the vicinity of Perdikaria and DU 2258. Photo from EKAS Archive.

Figure 5.14. Dimitri Nakassis measuring ashlar cut block exposed through bulldozer cutting at Rachi Boska and DU 632. Photo from EKAS Archive.



Eastern Korinthia Archaeological Survey **Discovery Unit:**

Features

M=Modern, PM=Pre-Modern, B=Both, I=Indeterminate / Check ONLY if ***Non-Functional***

Agri Facilities	______	☐	Hives	______	☐	Terrace, Collapsed	______	☐
Animal Pen	______	☐	Industrial	______	☐	Threshing Floor	______	☐
Baths	______	☐	Kiln	______	☐	Walls (non-terrace)	______	☐
Bridge	______	☐	Monumental Arch	______	☐	Well	______	☐
Burials	______	☐	Non-descript Arch	______	☐	Pit	______	☐
Church	______	☐	Observation Post	______	☐	Resin Collector	______	☐
Cistern	______	☐	Road / Track	______	☐	Cot(s)	______	☐
Domestic Bldgs	______	☐	Terrace, Walled	______	☐	Intermitt. Domicile	______	☐
Fortification	______	☐	Terrace, Bulldozed	______	☐	Opportun. Cooking	______	☐
						Other	______	☐

Comments:

Course of Action

None ☐ Modern ☐ LoCA ☐ Architect ☐ Resurvey ☐ Survey later ☐ Other ☐

Comments:

Page 3

Figure 5.15. Image of the Features Page in 1999. Compare with Figure 5.17.

Eastern Korinthia Archaeological Survey **Discovery Unit:** ☐

Modern Sweep

Construction Styles, in situ Architecture

- Non-Mortared ☐
- Mud Mortar ☐
- Lime Mortar ☐
- Concrete ☐
- Other ☐

Construction Materials, in situ Architecture

- Concrete Block ☐
- Glass ☐
- Limestone ☐
- Mud ☐
- Elenit ☐
- Poured Concrete ☐
- Schist ☐
- Tile ☐
- Wood ☐
- Other ☐

Artifactual Material

- Bone ☐
- Brick ☐
- Cans ☐
- Glass Vessels ☐
- Glazed Glass ☐
- Firearm Shells ☐
- Large Porcelain ☐
- Plastic ☐
- Rubber ☐
- Sheet Metal ☐
- Shell ☐
- Wood ☐
- Machinery ☐
- Cloth ☐
- Paper ☐
- Other Metal ☐
- Coins ☐
- Concentrated Trash ☐
- Random Trash ☐
- Other ☐

Briefly Describe Modern Usage of Area with Description of Identifying Features and Artifacts:

Page 4

Figure 5.16. Image of the Modern Sweep Page in 1999. Compare with Figure 5.17

EKAS v.2, summer 2000 3

EKAS v.2, Summer 2000, Page 3 **Discovery Unit:** [ ]

Features

M=Modern, PM=Pre-Modern, B=Both, I=Indeterminate / Check as many as apply

Architecture	____	☐	Domestic Structure	____	☐	Terrace wall, standing	____	☐
Animal Pen(s)	____	☐	Ekklisaki	____	☐	Terrace wall, collapsed	____	☐
Bridge	____	☐	Fortification Wall	____	☐	Field wall, standing	____	☐
Built Tomb	____	☐	Kiln	____	☐	Field wall, collapsed	____	☐
Camp	____	☐	Monumental	____	☐	Well, built	____	☐
Check Dam	____	☐	Outbuilding	____	☐	Isolated/non-contextual	____	☐
Church	____	☐	Oven	____	☐	Other	____	☐
Cistern	____	☐	Retaining wall	____	☐			
Non-Architectural	____	☐	Pit	____	☐	Terraces, bulldozed	____	☐
Burials, non-built	____	☐	Resin collector	____	☐	Threshing floors	____	☐
Campfires	____	☐	Road, paved	____	☐	Water channel, perm.	____	☐
Dump	____	☐	Road/track, unpaved	____	☐	Well, non-built	____	☐
Hives	____	☐	Road/cut	____	☐	Other	____	☐
Interpretive	____	☐	Industrial Facility	____	☐	Settlement	____	☐
Agricultural Facility	____	☐	Military Installation	____	☐	Other	____	☐
Harbor	____	☐	Monastery	____	☐			

Comments (continue on back of page, if necessary):

Course of Action

None ☐ Modern ☐ LoCA ☐ Architect ☐ Resurvey ☐ Survey later ☐ Other ☐

Comments:

Figure 5.17. Image of the Features Page in 2000.

5.3. Recording the Environments of Survey

EKAS teams systematically collected information about natural and human environments in order to provide contextual data on the conditions of fieldwork and discovery. Understanding the environment and character of survey data has long been central to survey work in Greece of course, but the Eastern Korinthia Survey made data collection fully integral. Geomorphological studies preceded and accompanied the survey, and we collected environmental information in the course of survey of the eastern Corinthia.

5.3.1. Geomorphological Units

The published methodology report explains in detail the overarching theories and frameworks that led to the project's emphasis on geomorphology and environment.[34] Two full seasons of study and mapping of the regional environment preceded the start of the survey in 1999. Once the survey began, the geomorphologists were an integral element of the fieldwork, working both on their own to document patterns in land formations and sediment, and in collaboration with team leaders to lay out survey units that respect the divergent morphostratigraphic units. Geomorphologists also teamed up with other field teams (e.g., the extensive team and coastal survey team) to map the broader landscape and identify areas of vanished coastal settlements. Their work collectively led to new discoveries, a rich record of natural and anthropogenic processes, and documentation of erosion, disturbance, and fill.

I will focus my comments here on particular elements of the geomorphological data available through Open Context that have bearing on analysis of published survey data. It is important to note that what has been curated and made available online represents only the body of information collected for 761 separate Geomorphic Units (GUs) that closely overlap with the area surveyed via Discovery Units.[35] Their record of GUs included standardized information and naming conventions for toponyms, morphostratigraphy, modern disturbance, land use, stability of sediments and erosion, soil colors, the presence of lichen, soil texture, and carbonate classes. Except in a few instances where data was lost, Discovery Units surveyed in 1999–2001 have associated geomorphological data. Because the geomorphology team did not return following the completion of the main phase of survey, we lack data for the 92 units surveyed in the area of Lakka Skoutara in 2002 and the 20 units investigated around Ano Vayia in 2003.[36]

While EKAS consistently mapped Geomorphic Units over several years, defining these units and their relationships to Discovery Units was hardly straightforward.[37] The underlying tension presented when using the geomorphic principle fell between respecting frequent variation in the environmental condition of units and a need to survey the territory efficiently. Much like the problem of studying artifact densities in the Corinthia—the more we looked, the more we found—a laser focus on distinctions in landforms revealed the physical landscape as a kind of fractal of endlessly deeper micro-divisions. The inherent complexity encouraged splitting units rather than grouping. This had ripple effects in reducing size of DUs,[38] which led to conversations early on about the primacy of efficient survey. There were some attempted fixes but ultimately no complete resolutions. The subdivision of fields with consistent land cover and vegetation through small GUs,[39] in particular, reduced DU size and had some effect on survey coverage through the multiplication of forms and data collection (Section 3.2).

Geomorphological study was tremendously valuable for the Eastern Korinthia Archaeological Survey, but the value of the geomorphic priority for laying out survey units is relatively understudied in comparison with other facets of the project. Unlike the study of chronotypes and artifact counts, for example, which has produced an extensive body of scholarship (cf. Appendix I.2.1), the project never fully outlined the relative benefits of GUs in respect to the costs in coverage. The *Geomorphology Data Table* contains a high-resolution micro-mapping of a significant corpus of Corinthian sediments across a range of landforms and would warrant a closer examination by specialists interested in the environmental differentiation over the territory.[40]

The geomorphological data has several values for the purposes of this study. First, the definition of survey units according to geomorphic considerations adds a certain integrity to the data and ensures that the artifacts deposited in that unit were affected by similar sets of natural and anthropogenic processes. Second, the geomorphological properties of the sediments will play an important factor in my definition of the region's archaeological zones (Section 7.3). These are basic sorts of analyses, of course, and others may be able to use these datasets to think further about artifact patterns. But this is a body of data that remains relatively understudied and requires more research from trained geologists.

While the use of geomorphological data in this study will not be especially sophisticated, the study will at least put it to use after a neglect of two decades. This itself is significant given how important geomorphology was to the overall conception and celebration of EKAS. Others may wish to analyze the geomorphological datasets available via Open Context to consider how natural and cultural layers are intertwined on a local level.

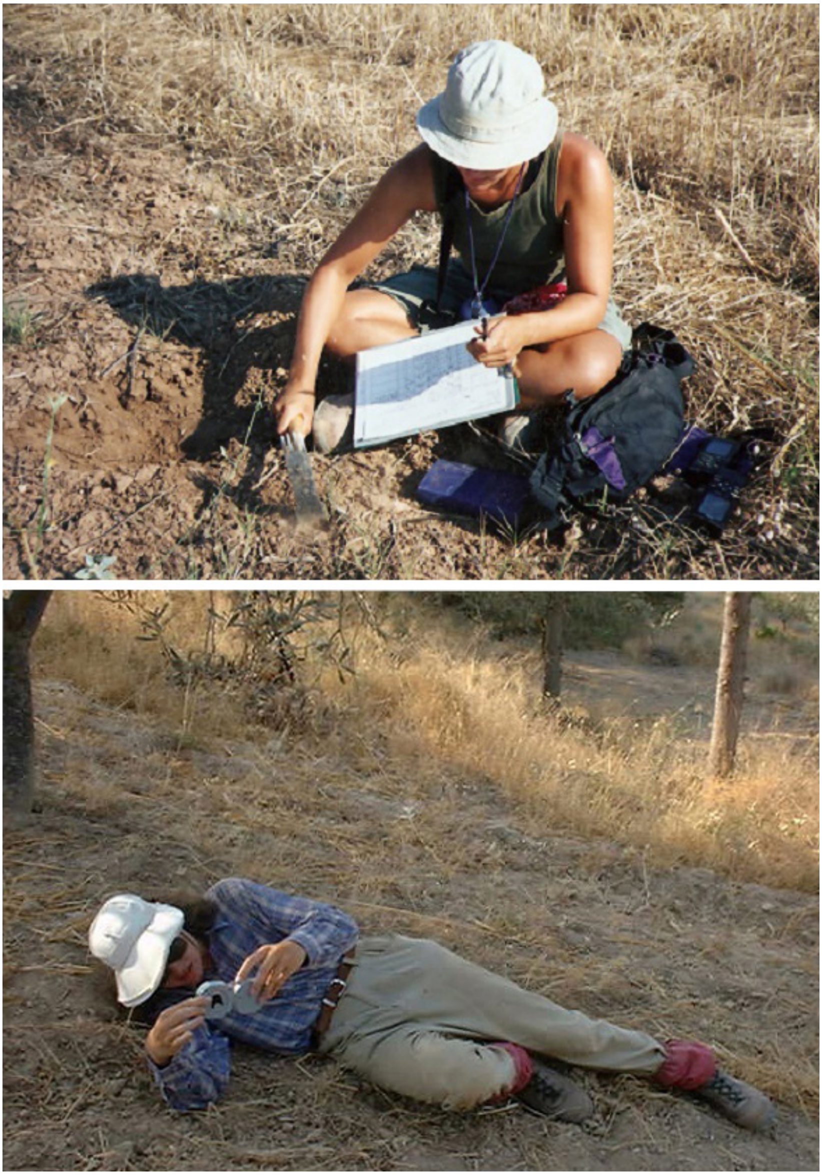


Figure 5.18. Geomorphologist at work sampling soils and estimating slope. Photos by author.

Figure 5.19. Team leader Andrew Smith collects data about the environment on lower slopes of Mount Oneion (DU 515) in 1999. Facing north toward Isthmus and Corinthian Gulf. Photo from EKAS Archive.

Figure 5.20. Team members collect data on ridgetop of Rachi Boska and DU 632 in 1999. Photo from EKAS Archive.

5.3.2. Environmental Data

One other dataset has bearing on the interpretation of survey data. As geomorphology interns worked to collect detailed information about landforms and natural processes, team leaders and surveyors recorded the conditions of the field. These conditions may have bearing on artifact counts and chronotypes identified.

The second page of the DU form was devoted to survey conditions and the environmental contexts of data collection.[41] One part of this page requested information on land cover, such as the presence or absence of certain vegetation types and the circumference of olive trees to provide a sense of the age of groves. Another part collected information on surface conditions that could affect both walker counts and object recognition: the percentage of surface visible, the condition of soil (plowed, compact, or loose), the nature and size of surface clast (e.g., rocks and organic materials), the dust and limestone encrustation of sherds, the presence of irrigation, and "background disturbance," the degree to which the color, composition, and rocks on the soil surface distracted the eye. A final section recorded the presence of different categories of current land use.

All of this data has value in situating DU data within particular environments created by different natural and human processes over time. The data collected also have unrealized analytical potential in terms of considering the overall relationship between the environmental conditions and the identification of cultural material, a theme I will return to in Chapter 8.

01100010 01110010 01100101 01100001 01101011

Collectively, the Eastern Korinthia Survey's rich and complex archaeological record made the project one of the more intensive surveys of the Greek mainland. EKAS was an early example of the data-centered projects that have come to constitute regional archaeological survey in the digital age. Oriented to a higher resolution mapping of the landscape and fine-grained distributional views of cultural and environmental conditions, and based in the software platforms of relational databases and geospatial frameworks, data-centered projects like EKAS encourage rethinking human landscapes in terms of the patterns of the micro-layers that collectively make up and shape the observable surface record.

One obvious index of the incredible quantity and types of information available for such study and analysis is the compilation of tables, geospatial files, and other information published at Open Context. The Linked Media page at Open Context displays our curated dataset that includes 9 tables with nearly 35,000 separate records and over 300 distinct data fields, plus associated project documents and a host of geospatial data.[42] The voluminous record of a uniquely rich landscape—now published online for anyone to download, query, and analyze—has created a range of new pathways to reconstruct the Corinthian landscape and think more generally about the nature of archaeological survey. Before describing the nature of the datasets and their possibilities for study, analysis, and interpretation of the eastern Corinthia, I need to describe briefly a very different alternative approach that EKAS followed in patterning the landscape: the Localized Cultural Anomalies.

Endnotes

1 This chapter concerns the methods adopted by a regional survey twenty-five years ago. Two valuable recent studies of the practices of archaeological survey (with references) are available in Attema et al. 2020 and Knodell et al. 2023.

2 https://doi.org/10.6078/M7SF2T9Q

3 See Knodell et al. 2023, 305, who recommend greater transparency in explaining research methods. For a comprehensive review of survey methods, see Tartaron et al. 2006.

4 https://n2t.net/ark:/28722/k2df72g4

5 E.g., The urban survey of Phlius through the Nemea Valley Archaeological Project covered about 120 hectares in 337 tracts, averaging to about 3,561 m^2/tract (Alcock 1991, 440). Surveyors of the Pylos region note that they subdivided tracts when larger than 5,000 m^2; their micro-tracts would, therefore, have normally fallen in the range of 2,500–5,000 m^2 (Davis et al. 1997, 405).

6 Tartaron et al. 2006, 474.

7 https://n2t.net/ark:/28722/k2z03j655

8 Earlier articles such as Tartaron et al. 2006 and Caraher, Nakassis, and Pettegrew 2006 used a different figure of 1,336 units reflecting a different way of counting survey units. My total of 1,338 standard units includes the units around Ano Vayia, surveyed in 2003 (excluded in earlier publications), but not a dozen resurveyed units included in earlier tallies. In the data tables, these 1,338 units include 1,287 "Standard" units plus 51 "Counts" units which were surveyed in standard ways but have only artifact counts data (i.e., their identified finds are missing); See: https://n2t.net/ark:/28722/k2df72g4h.

9 https://n2t.net/ark:/28722/k2df72g4h

10 Isthmus (https://pleiades.stoa.org/places/570317), Examilia (https://www.geonames.org/262558/examilia.html), Xylokeriza (https://www.geonames.org/259734/kyras-vrysi.html), Kechries (https://www.geonames.org/260288/kekhries.html), Kyras Vrysi (https://www.geonames.org/259734/kyras-vrysi.html), Vigla (https://www.geonames.org/12514008/vigla.html), Vayia (https://www.geonames.org/9409078/vayia.html), Saronic Gulf (https://pleiades.stoa.org/places/570654), Kato Almyri (https://www.geonames.org/260640/kato-almyri.html), Solygeia (https://pleiades.stoa.org/places/570682), Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html), and Korphos (https://www.geonames.org/259310/korfos.html)

11 https://n2t.net/ark:/28722/k2j67s87s

12 https://n2t.net/ark:/28722/k2j67s87s

13 https://n2t.net/ark:/28722/k2v98k29s

14 https://n2t.net/ark:/28722/k2df72g4h

15 Tartaron et al. 2006, fig. 4. Corinth Canal (https://pleiades.stoa.org/places/131418574) and Ancient Corinth (https://pleiades.stoa.org/places/570182).

16 Corinthian Gulf (https://pleiades.stoa.org/places/570181)

17 Tartaron et al. 2006, 464–465.

18 https://n2t.net/ark:/28722/k2mp5fz79

19 The project was first developed as part of the Sydney Cyprus Survey Project: Meyer 2003; Meyer and Gregory 2003.

20 Gregory 2004; Caraher et al. 2006, 12–13; Tartaron et al. 2006, 476–483; Pettegrew 2007; Moore 2008; Winther-Jacobsen 2010, 2022; Pettegrew 2014; Caraher et al. 2020.

21 *Late Roman* ARS99 Rim: https://n2t.net/ark:/28722/k22b9c014; *Ancient Historic* Medium Coarse Ware: https://n2t.net/ark:/28722/k2j67sj00

22 Gregory 2004; Kersel 2015.

23 My total numbers here differ slightly from those noted in Section 5.2.1, and those used by Tartaron et al. 2006, 476–481 and Caraher, Nakassis, and Pettegrew 2006, 12–13, because they reflect different ways of querying the data. The percentages of chronotypes relative to the total count are on par with other projects: Moore 2008, 141–142, notes that the Pyla-Koutsopetria Project collected 20% of its counted artifacts via the chronotype system. Given et al. 2013, 25, note a 31% chronotype sample of counted artifacts in the Troodos Archaeological Environmental Survey Project.

24 Tartaron et al. 2006, 478.

25 https://n2t.net/ark:/28722/k2df72g4h

26 The Collection-Strategy field in the finds (object) data at Open Context specifies collection strategy adopted; "collection" in this respect simply denotes the sampling method since most were not actually removed from the field; https://n2t.net/ark:/28722/k2xd1795v

27 Field teams picked up 1 tile fragment or edge for every 5 swaths in which tiles were counted in 1999 (168 tiles identified: 963 tile swaths). In 2000, teams picked up 2 tile fragments for every swath in which tiles were counted.

28 Caraher et al. 2006, 12–13; Tartaron et al. 2006, 476–483; Pettegrew 2007.

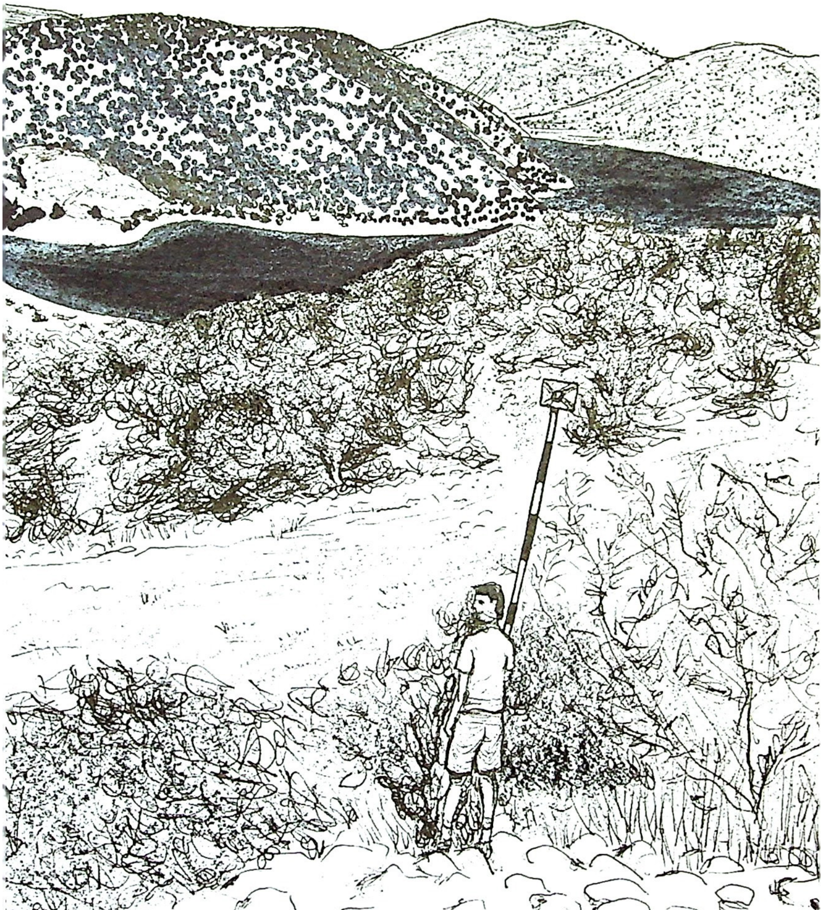
29 Tartaron et al. 2006.

30 Tartaron et al. 2006, 480. Moore's study of the artifact assemblages produced through chronotype collection for PKAP in Cyprus (2008) argued that walkers there neither undercollected nor overcollected objects but picked up just the right amounts. As Moore notes, however, PKAP was not subject to the restrictions of analyzing objects in the field, which allowed the ceramic analyst to examine objects at the museum after washing and to identify with greater precision.

31 Subsequent survey experiments carried out through the Pyla-Koutsopetria Archaeological Project in Cyprus (see Moore 2008; Pettegrew 2014), which compared chronotype sampling in standard pedestrian survey with hoovering or vacuuming all objects, showed that a more intensive hands-and-knees collection increased the resolution of chronotype diversity within a unit but did not usually change chronological or functional resolution. That is, looking more intensively at the surface generated more types of objects of certain periods but did not change the overall picture about time or past activities in the unit: the "vast majority of additional artifacts....marked redundant information" (Pettegrew 2014, p. 68).

32 The value "Both" was used in cases where a DU included both a premodern feature and a modern feature.

33 At the time of this writing (May 2022), I have not been able to track down digital copies of the original field notebooks which are stored at Isthmia.
34 Tartaron et al. 2006.
35 https://n2t.net/ark:/28722/k2nz8h317
36 Ano Vayia (https://www.geonames.org/12514006/ano-vayia.html)
37 https://n2t.net/ark:/28722/k2nz8h317
38 https://n2t.net/ark:/28722/k2df72g4h
39 https://n2t.net/ark:/28722/k2nz8h317
40 https://doi.org/10.6078/M7JH3JBR
41 https://n2t.net/ark:/28722/k2z03j655
42 https://n2t.net/ark:/28722/k2ff43n9r



Chapter 6
Localized Cultural Anomalies

At the time the Eastern Korinthia Archaeological Survey project formed in 1998, Mediterranean archaeologists were actively debating the value of the archaeological concept of "site" (Section 2.4). Earlier surveys in the Aegean had often recorded and mapped the regional distribution of "farmsteads," "villas," and "hamlets" in order to describe and map the hierarchy of regional settlement systems. By the 1990s, however, landscape archaeologists had become more attentive to the ontological and epistemic challenges of the concept "site." Some scholars questioned the very meaning of the word "site" in the context of regional survey, while others noted the definitional problems of identifying one in surface scatters. The introduction of distributional approaches into the Mediterranean surveyor toolkit both reflected and shaped these concerns by shifting focus to the artifactual elements: the changing densities of individual ceramic, stone, glass, and metal objects that constitute the surface record.

The EKAS project, I have noted, occupied a transitional place in this epistemic turn, embracing distributional approaches as its primary method for documenting territories but selectively using the site (LOCAs) to create richer documentation of interesting places. The LOCA, or Localized Cultural Anomaly, comprised the Eastern Korinthia Survey's category for defining a feature or cluster of artifacts as anomalous and unique, and for prioritizing areas for further study that were subject to potential threat. Although the LOCA was never EKAS' primary method of recording cultural material in the survey area, defining Localized Cultural Anomalies played an important role in communicating to the Greek Ministry of Culture significant places under threat of development. The list of LOCAs compiled by EKAS provides another glimpse into Corinth's countryside, while the selective

Figure 6.1. Field director Thomas Tartaron (left) and team leader Robert Schon (right) plan LOCA collection in 1999 at the ridgetop site of Rachi Boska, just north of Mount Oneion. Photo from EKAS Archive.

Figure 6.2. Lita Tzortzopoulou-Gregory (center), leader of the modern survey team, works with illustrator (left) and geomorphologist (right) to document Classical–Hellenistic and Venetian fortifications on Mount Oneion. Photo by Timothy E. Gregory.

investigation of a dozen LOCAs generated additional interpretive layers of the project—layers that are now associated with distinct geospatial and cultural datasets at Open Context.[1]

This chapter has two main goals in describing LOCAs in EKAS. In one respect, I outline the framework, concept, and definition of LOCAs, their discrepant relationship to distributional survey data, and the more intensive modes of their investigation in order to provide the reader with a clearer view of this particular class of data. In another respect, I briefly present and summarize the set of 88 LOCAs defined during survey, all of which have associated online data files.[2] The reader of Corinthian archaeology may peruse this list to get a sense of the rich complexity of Corinth's countryside from prehistory to the modern era, and may explore online datasets for more detailed information.[3] A later section in the following chapter (Section 7.4) will describe the data fields of the *LOCAs Data Table* at Open Context.[4]

6.1. LOCAs and Distributional Survey

Discovery Unit survey in EKAS formed the principal method of characterizing fluctuating artifact densities in the landscape (Chapter 5), but it also served the important role of identifying locations warranting intensive, closer investigation (Figure 6.1). DU survey, in this respect, marked a preliminary step to defining Localized Cultural Anomalies, the project's interpretive category and framework for designating some locations as worthy of study through finer-grained methods. As the EKAS field manual describes,[5] the LOCA was the EKAS term for archaeological site, defined according to an evaluation matrix. A LOCA had to be: "1) localized, thus having some spatial integrity by which it may be distinguished from the material and/or the landscape around it; 2) cultural, thus a product of human agency of manufacture or modification, and not (as far as we can tell) a result of natural causes; and 3) 'anomaly,' thus qualitatively and/or quantitatively different from the surrounding material and/or landscape."[6]

As the project staff recognized in their field manual, designating whether a location in EKAS territory was a LOCA ultimately marked "a subjective process that reflects the interests and research goals of the participants of the project."[7] Yet, the process followed an evaluation matrix that considered the archaeological and geomorphological characteristics of the location in a systematic way. Initial consideration by the team leader at the time of survey was followed by further conversation with other senior staff, especially the field director, outside of the field. Team leaders officially nominated places as LOCAs through the LOCA Designation and Initial Assessment, a form "designed to operationalize the LOCA Evaluation Matrix" by considering the physical characteristics of artifact densities, environmental data, and chronology and function, and an assessment of the location's risk of development.[8] In short, the identification and definition of LOCAs in EKAS depended on the archaeological judgment that a particular location was exceptional, but that judgment followed a systematic process in conversation with others.

In practice, the defining of LOCAs presented challenges of conception and method. The consistently high-density carpet of artifacts in the Corinthian landscape made the identification of sites an especially difficult task. As the field teams discovered in 1999, the ubiquity of graves, artifact scatters, quarries, premodern walls, and a vast array of modern features meant that it would be impossible to use the LOCA category in the same way that many survey projects used the site category—as a systematic presentation of the full array of discrete, bounded clusters in a territory of scattered settlement. The rich material culture in the eastern Corinthia, rather, spread continuously over the landscape in a seemingly endless overlay of artifacts and features of different periods and functional classes. Defining LOCAs in this situation depended in large part on a team leader's intuitive sense that a place was worthy of future investigation, gridded survey, and/or collection of artifacts from the field. Yet, real differences of opinion developed when density data was set alongside the sense of intuition. The title of the document I recently rediscovered in a box of EKAS documents—"Why LOCA 9154 is not a LOCA"[9]—neatly pinpoints the discrepancy of definition: should subjective impressions of total density or artifacts, or computer-corrected density values be favored in defining sites?

Although the project's compilation of 88 LOCAs reflects the particular interests of its participants, the Localized Cultural Anomalies do represent some variety of different forms, shapes, and sizes.[10] Many corresponded to clusters of Discovery Units judged as having exceptional artifact densities or high densities of certain classes of material,[11] e.g., the LOCA-COLA, a "Concentration of Lithic Artifacts." Some denoted interesting specific features such as premodern cairns or Roman olive press equipment discovered in survey, or even known archaeological sites that lay within survey transects. Others marked features and buildings discovered through extensive survey or geological work. Several are called "Special Interest Areas" (SIAs), which are districts containing LOCA groups, such as Kromna, Kato Vayia, and Vigla.[12] Two of the project's specialists, Joseph Rife and Lita Tzortzopoulou-Gregory, recorded their own lists of classes of LOCAs unique to their studies of graves and modern sites of the last two centuries.[13] The sheer variety of anomalous concentrations, their overlapping and continuous nature, and the different interests of project members made it difficult to generate a truly comprehensive list of sites in the eastern Corinthia.

The reader should note, then, that our catalogue of LOCAs represents an incomplete list of areas that we believed warranted further study. Most have not received closer study—at least not in terms of a more systematic and intensive gridded survey—but the list of LOCAs was nevertheless important for several reasons. Because we were allowed to remove objects from the field in cases of identified sites, LOCA investigations created the opportunity to collect objects for closer study at Isthmia.[14] These items comprise many of the drawn and photographed objects and have produced a good physical collection of sampled chronotypes. An entire field team was dedicated each season to the work of running survey experiments and LOCA investigations, and sampled, in the course of three seasons, a dozen areas with gridded collection.[15] The finds and documents associated with LOCAs, whether gridded or not, have produced an additional layer of information about certain regional sites that overlap with the distributional survey. But most importantly, LOCAs gave us the flexibility to explore parts of the region not covered and captured by distributional survey units.

6.2. LOCA Investigations and Grids

Over a period of three years, teams investigated a number of LOCAs through more intensive investigations, methods, and recording (Figure 6.2). These included sites that investigators revisited after initial discovery in order to generate detailed plans, photographs, and descriptions. In other cases, investigations comprised independent studies of features that lay within survey territory but outside of the survey transects that came to our attention in other ways such as, for example, when local informants shared knowledge of a Roman aqueduct. Many of the regional mortuary sites studied by Joseph Rife, or the modern villages, buildings, and cemeteries recorded and mapped by Lita Tzortzopoulou-Gregory, also fell outside of the areas covered by the Discovery Units.

In 13 cases, the project adopted hyper-intensive gridding methods that produced quantitative data comparable to the DU survey. Investigations usually involved a regular grid of 10 x 10 units over areas ranging in size from 1,500 m^2 (a single row of 15 grid squares) to 22,800 m^2 (multiple rows of grid squares stretching over 200+

meters in length). Surveyors randomly sampled grid squares through different intensive strategies, especially picking up unique chronotypes from a 5-m^2 circle at the center of the sub-unit (a strategy known as "Chronotype-Circle"). There were other variations in the dimensions and regularity of sub-units, the sample size, and sampling strategy. The different distinctions in surveying sub-units are spelled out in the season reports of the LOCA and Experimental team, the data tables, and GIS shapefiles, which are available for browsing and downloading through the Linked Media page at Open Context.[16] In a later chapter (Ch. 12), I will integrate artifact data collected from LOCAs with the main body of distributional survey data associated with defined zones to expand a discussion of the presence and absence of different periods in the countryside.

Collectively, the investigation and data of LOCAs mark another layer for thinking about the landscape's artifacts, features, buildings, and settlements. LOCAs add value through detailed descriptions and plans that aid in interpretation. They also create direct points of comparison with the density data of artifact counts and chronotypes. Some LOCAs generated objects through grab samples or gridded collection that are stored today at the Excavation House at Isthmia. LOCAs simply provide an additional opportunity to learn more about Corinthian countrysides and to reflect on the character of the sample.

6.3. Catalogue of LOCAs

The following list of LOCAs provides a brief descriptive summary of the 88 locales designated as sites in the eastern Corinthia.[17] The description of each LOCA is cursory, designed to provide a quick introduction to named sites of the survey region. More detailed descriptive data tables and GIS shape files, including more precise location and references, are available for download at the Linked Media page at Open Context.[18] The final project report in 2001 contains a fulsome description and interpretation of LOCAs,[19] while many of the DU team reports detail findings at LOCAs.[20]

Note to reader: This list does not mark a gazetteer of all the archaeological "sites" in the territory but only those places in the survey area judged (during survey) as potentially fruitful for closer investigation. Because many of the highest-density areas of the region in fact represent complex overlays of occupation of different periods, a more meaningful approach to defining sites systematically in the eastern Corinthia is to examine the layers of artifacts period by period (cf. Ch. 9 and Ch. 11).

Figure 6.3. LOCA 9001 viewed from the north. Photo from EKAS Archive.

Figure 6.4. Polygonal stone wall below Rachi Boska (LOCA 9001), facing south. Cf. illustration at Open Context. Photo from EKAS Archive.

Figure 6.5. Polygonal stone wall below Rachi Boska (LOCA 9001), facing southwest. Cf. illustration at Open Context. Photo from EKAS Archive.

Figure 6.6. Ashlar blocks exposed by deep plowing at northwest edge of LOCA 9003. Photo by author.

Figure 6.7. The author at Roman tomb along the Corinth-Isthmia road near Kromna (LOCA 9006: cf. Figure 4.11). Photo by Kate Pettegrew.

LOCA 9001. *Name:* Rachi Boska. *Materials:* Prehistoric and Historic Architecture and Artifact Scatter. *Interpretation:* Settlement, Shrine, Burials. *Period:* Ancient to Medieval. *Location:* Rachi Boska ridge. *Description:* Neolithic to Bronze Age settlement with walls, fortified Classical settlement, Roman occupation with later phases. *Investigation Type:* DU Survey, Gridded Collection, Grab Sample, Recorded.[21]

LOCA 9002. *Name:* Rachi Boska South–Ceramic and Lithic Scatter. *Materials:* Artifact Scatter. *Interpretation:* Activity Area. *Period:* Ancient, especially Classical–Roman. *Location:* Gentle slopes to south of Rachi Boska. *Description:* High-density artifact scatter. *Investigation Type:* DU Survey, Gridded Collection, Grab Sample, Recorded.[22]

LOCA 9003. *Name:* Kesimia Ridge Site. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Settlement or Sanctuary. *Period:* Ancient. *Location:* Kesimia Ridge overlooking valley. *Description:* High-density scatter and monumental architectural features including large cut stone and ritual artifacts: figurines, miniatures, perrirhanterion. Nicknamed "Pantheon" during survey. *Investigation Type:* DU Survey, Gridded Collection, Grab Sample, Geophysical Survey, Recorded.[23]

Figure 6.8. LOCA 9008. Fortification wall on top of Mount Oneion. Photo by Timothy E. Gregory.

LOCA 9004. *Name:* Rachi Boska–Lithic Scatter. *Materials:* Artifact Scatter. *Interpretation:* Activity Area. *Period:* Prehistoric. *Location:* Small vineyard on Rachi Boska ridge. *Description:* High-density area of flaked stone artifacts including obsidian flakes and blade segments; pottery relatively abundant. *Investigation Type:* DU Survey and Gridded Collection.[24]

LOCA 9005. *Name:* Kromna. *Materials:* Artifact Scatter and Architecture. *Interpretation:* Settlement, Sanctuary, Tombs, Industrial Site. *Period:* Ancient. *Location:* South of Examilia Quarries and Corinth-Isthmia road. *Description:* Artifacts and features below fault line along which is the trans-Isthmus wall. *Investigation Type*: DU Survey, Gridded Collection, Grab Sample, Recorded.[25]

LOCA 9006. *Name:* Kromna–Boulberi. *Materials:* Artifact Scatter, Tombs. *Interpretation:* Settlement, Tombs, Agricultural. *Period:* Classical to Late Roman. *Location:* West side of Corinth-Isthmia road on ridge near Examilia Quarries. *Description:* Ceramic scatter and features (cf. LOCA 9134) north of Roman tombs. *Investigation Type:* DU Survey, Gridded Collection, Grab Sample, Recorded.[26]

Figure 6.9. Church of Ayios Athanasios north of Examilia. LOCA 9009. Photo from EKAS Archive.

LOCA 9007. *Name:* Kromna–Northwest. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Ancient to Medieval. *Location:* North and east of Kromna hill. *Description:* High-density artifact scatter, cut stone blocks, and molded architecture. *Investigation Type:* DU Survey, Gridded Collection, Grab Sample.

LOCA 9008. *Name:* Oneion Fortifications–*Classical–Hellenistic* Wall. *Materials:* Walls. *Interpretation:* Fortress. *Period:* Classical–Hellenistic. *Location:* Eastern side of Maritsa Pass on Mount Oneion. *Description:* Classical period fortification walls with both faces preserved and standing several courses high. *Investigation Type:* DU Survey, Gridded Collection, Recorded.

LOCA 9009. *Name:* Ayios Athanasios–Ceramic and Lithic Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement and Activity Area. *Period:* Ancient. *Location:* East of church of Ayios Athanasios near Yiriza and Kato Examilia. *Description:* Concentration of artifacts, especially lithic artifacts. *Investigation Type:* DU Survey, Gridded Collection, Grab Sample.

LOCA 9010. *Name:* Gonia–Ceramic Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Prehistoric. *Location:* Southwest of Gonia hill. *Description:* High-density scatter of prehistoric pottery. *Investigation Type:* DU Survey and Gridded Collection.[27]

LOCA 9011. *Name:* Kato Examilia–Early Modern House. *Materials:* House. *Interpretation:* Settlement. *Period:* Modern. *Location:* Northern outskirts of village of Examilia. *Description:* Abandoned Modern house from old settlement of Kato Examilia. *Investigation Type:* Recorded.[28]

LOCA 9012. *Name:* Kenchreai Village. *Materials:* Village. *Interpretation:* Settlement. *Period:* Modern. *Location:* Kechries surrounding Kenchreai harbor. *Description:* Village of Kechries. *Investigation Type:* Modern Village Recording Form.[29]

LOCA 9013. *Name:* Kenchreai Cemetery–Metamorphosis tou Sotiriou. *Materials:* Graves. *Interpretation:* Cemetery. *Period:* Modern. *Location:* Center of village of Kechries. *Description:* Modern cemetery. Church of Metamorphosis tou Sotiriou dates to late nineteenth century, earliest grave monument to 1930s. *Investigation Type:* Modern Cemetery Recording Form and Mapped.[30]

LOCA 9014. *Name:* Xylokeriza Village. *Materials:* Village. *Interpretation:* Settlement. *Period:* Modern. *Location:* Xylokeriza. *Description:* Village of Xylokeriza. *Investigation Type:* Modern Village Recording Form.[31]

LOCA 9015. *Name:* Xylokeriza Cemetery–Ayios Georgios. *Materials:* Graves. *Interpretation:* Cemetery. *Period:* Modern. *Location:* Ayios Georgios north of Xylokeriza Village. *Description:* Xylokeriza Cemetery, with earliest grave monument dating to 1900. Church renovated recently. *Investigation Type:* Modern Cemetery Recording Form and Mapped.[32]

LOCA 9016. *Name:* Examilia Village. *Materials:* Village. *Interpretation:* Settlement. *Period:* Modern. *Location:* Examilia. *Description:* Modern village of Examilia. *Investigation Type:* Modern Village Recording Form.[33]

LOCA 9017. *Name:* Examilia Cemetery–Ayios Theodoros. *Materials:* Graves. *Interpretation:* Cemetery. *Period:* Modern. *Location:* Ayios Theodoros near Examilia Village. *Description:* Cemetery northeast of Examilia, earliest grave monument dating to 1896. *Investigation Type:* Modern Cemetery Recording Form and Mapped.[34]

LOCA 9018. *Name:* Aqueduct Cutting. *Materials:* Aqueduct. *Interpretation:* Aqueduct. *Period:* Roman. *Location:* South of Ayios Dimitrios Ridge on road to Kenchreai harbor at place called Lagouni. *Description:* Ancient aqueduct suggested by bedrock cutting at head of gully leading east to Kenchreai harbor. *Investigation Type:* Recorded.[35]

LOCA 9019. *Name:* Examilia–Aqueduct Northeast. *Materials:* Aqueduct. *Interpretation:* Aqueduct. *Period:* Roman. *Location:* In area of Examilia Village near western side of road to Xylokeriza Village. *Description:* Ancient aqueduct and well; part of aqueduct system leading north from Mount Oneion to Examilia Village. *Investigation Type:* Recorded.[36]

LOCA 9020. *Name:* Examilia–Aqueduct Shaft. *Materials:* Aqueduct. *Interpretation:* Aqueduct. *Period:* Roman. *Location:* Southeast of Examilia Village. *Description:* Ancient aqueduct. Huge access vertical round shaft representing head of the aqueduct. The shaft is now capped with a cement slab with two access doors. *Investigation Type:* Recorded.[37]

LOCA 9021. *Name:* Examilia–Aqueduct Southwest. *Materials:* Aqueduct. *Interpretation:* Aqueduct. *Period:* Roman. *Location:* On the road to Church of the Analipsi, south of Examilia Village. *Description:* Possible aqueduct. *Investigation Type:* Recorded.[38]

LOCA 9027. *Name:* Cummer Tomb. *Materials:* Grave. *Interpretation:* Tomb. *Period:* Roman. *Location:* East of Bourtzi, a district of Roman burials northeast of Kenchreai harbor. *Description:* Tomb; known archaeological site; survey occurred in vicinity to west and south. *Investigation Type:* DU Survey (nearby).[39]

LOCA 9028. *Name:* Bourtzi–Early Christian Church. *Materials:* Architecture, Artifact Scatter. *Interpretation:* Church, Settlement, Burials. *Period: Late Roman*. *Location:* South and west of Cummer Tomb east of Kenchreai harbor. *Description:* High-density scatter possibly associated with an Early Christian church; marble fragments. *Investigation Type:* DU Survey and Grab Sample.[40]

LOCA 9031. *Name:* Panorama–Hellenistic Building. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Farm and Tower. *Period:* Hellenistic. *Location:* Panorama ridge overlooking Kenchreai harbor. *Description:* *Classical–Hellenistic* pottery and *in situ* walls. *Investigation Type:* DU Survey and Recorded.[41]

Figure 6.10. Surveying a ancient rubble piles at Kato Vayia (LOCA 9035). Photo from EKAS Archive.

Figure 6.11. Surveying ancient rubble piles at Kato Vayia (LOCA 9035). Photo from EKAS Archive.

LOCA 9032. *Name:* Kokkinia–Scatter. *Materials:* Artifact Scatter. *Interpretation:* Villa or Farm. *Period:* Roman. *Location:* Kokkinia, north of Kenchreai harbor, below Ayios Dimitrios ridge. *Description:* High-density artifact scatter. *Investigation Type:* DU Survey and Grab Sample.[42]

LOCA 9034. *Name:* Kyras Vrysi–Fine Ware Deposit. *Materials:* Pottery Concentration. *Interpretation:* Bothros. *Period:* Archaic–Classical and later. *Location:* West of village of Kyras Vrysi ca. 150 meters north of Corinth-Isthmia road. *Description:* Concentration of artifacts, probably a pit, some pottery burnt. Possibly deposited in a bothros. *Investigation Type:* Grab Sample.[43]

LOCA 9035. *Name:* Kato Vayia–SIA. *Materials:* Artifacts, Cairns, and Architecture. *Interpretation:* Settlement. *Period:* Bronze Age to Hellenistic, with occasional earlier and later material. *Location:* Kato Vayia above Lychnari Bay. *Description:* Special Interest Area for entire site. *Investigation Type:* DU Survey, Grab Sample, Recorded, Mapped.[44]

LOCA 9036. *Name:* Kato Vayia–Lower Terrace with Structures. *Materials:* Structures and Cairns. *Interpretation:* Settlement. *Period:* Bronze Age to Hellenistic, Modern. *Location:* Kato Vayia, middle zone of terraced area to southeast of geodetic marker. *Description:* Stone cairns, rectangular stone structures, and walls. *Investigation Type:* DU Survey, Recorded, Mapped.[45]

LOCA 9039. *Name:* Kato Vayia–Cairn. *Materials:* Cairn. *Interpretation:* Settlement. *Period:* Bronze Age to Hellenistic, Modern. *Location:* Kato Vayia. *Description:* Easternmost and westernmost rock piles. *Investigation Type:* DU Survey, Recorded, Mapped.[46]

LOCA 9062. *Name:* Kato Vayia–Cairn. *Materials:* Cairn. *Interpretation:* Settlement. *Period:* Bronze Age, Classical–Hellenistic. *Location:* Kato Vayia down slope from the plateau, 25 meters south of the geodetic marker. *Description:* A cairn or long rubble wall. *Investigation Type:* DU Survey, Recorded, Mapped.[47]

LOCA 9063. *Name:* Kato Vayia–Cairn. *Materials:* Cairn and Artifact Scatter. *Interpretation:* Settlement. *Period:* Bronze Age, Classical–Hellenistic. *Location:* Kato Vayia, southwest area of plateau, ca. 110 meters south of geodetic marker. *Description:* Two cairns or rubble walls. *Investigation Type:* DU Survey, Recorded, Mapped.[48]

LOCA 9064. *Name:* West Foundation–Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Ancient. *Location:* Immediately west of roadside monument known as West Foundation, ca. 100 meters north of Corinth-Isthmia road. *Description:* Very high artifact densities. *Investigation Type:* DU Survey.[49]

LOCA 9065. *Name:* Vigla–Basin. *Materials:* Basin. *Interpretation:* Agricultural Equipment. *Period:* Classical–Hellenistic. *Location:* Vigla. *Description:* Rock-cut agricultural basin at ridgetop site of Vigla. *Investigation Type:* DU Survey and Recorded.[50]

LOCA 9066. *Name:* Vigla–Wall. *Materials:* Wall Remains. *Interpretation:* Building. *Period:* Classical–Hellenistic. *Location:* Vigla. *Description:* Course of wall atop the plateau at Vigla noted in Wiseman's *Land of the Ancient Corinthians* (1978). *Investigation Type:* DU Survey, Recorded, Mapped.[51]

LOCA 9067. *Name:* Vigla–Threshing Floor. *Materials:* Aloni. *Interpretation:* Agricultural Equipment. *Period:* Modern. *Location:* Northwest part of Vigla plateau. *Description:* Threshing floor (aloni), roughly circular in shape; large pit dug in the southwest part of aloni. *Investigation Type:* DU Survey and Recorded.[52]

LOCA 9068. *Name:* Vigla–Wall Remains. *Materials:* Wall Remains. *Interpretation:* Walls. *Period:* Indeterminate. *Location:* Along bluff below Vigla plateau. *Description:* Walls, 3 rubble piles running east along ridgeline. *Investigation Type:* DU Survey, Recorded, Mapped.[53]

LOCA 9069. *Name:* Vigla–Slope Rubble. *Materials:* Wall Remains. *Interpretation:* Walls. *Period:* Indeterminate. *Location:* Vigla. *Description:* Rubble features on the downward slope below the plateau of Vigla. High density of rubble scatter with ceramic artifacts in low densities intermixed. *Investigation Type:* DU Survey, Recorded, Mapped.[54]

LOCA 9070. *Name:* Rachi Boska Farm or Villa. *Materials:* Artifact Scatter. *Interpretation:* Villa. *Period:* Classical–Hellenistic, Late Roman. *Location:* Below and west of Rachi Boska in Perdikaria. *Description: Classical* and *Late Roman* habitation below and west of Rachi Boska. Bulldozing on edge of field exposed scarp with significant amounts of Late Roman pottery. *Investigation Type:* DU Survey and Recorded.[55]

LOCA 9074. *Name:* Kromna–SIA. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Ancient Settlement. *Period:* Diachronic. *Location:* Kromna between Corinth-Isthmia road and gravel Kromna road on south. *Description:* Special Interest Area for Kromna. *Investigation Type:* DU Survey, Recorded, Mapped, Geophysical Survey.[56]

LOCA 9075. *Name:* Ayios Kosmas–Road and Artifact Scatter. *Materials:* Feature and Artifact Scatter. *Interpretation:* Ancient Settlement. *Period:* Ancient. *Location:* Ayios Kosmas. *Description:* LOCA includes a North-South linear feature, perhaps a road, and high-artifact density area associated with it. *Investigation Type:* DU Survey and Recorded.[57]

LOCA 9076. *Name:* Rachi Marias–Mycenaean Settlement. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Late Bronze Age. *Location:* North of district known as Rachi Marias. Scatter located southwest of excavated Rachi settlement. *Description:* Concentration of Mycenaean artifacts on ridge and slope and ravine to the south. *Investigation Type:* DU Survey and Recorded.[58]

LOCA 9077. *Name:* Rachi Marias–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Ancient to Medieval, especially Roman. *Location:* North of district known as Rachi Marias. *Description:* High-density concentration of Late Roman and modern material just above and south of the Hellenistic stadium. *Investigation Type:* DU Survey and Recorded.[59]

LOCA 9078. *Name:* Rachi Marias–Mycenaean Wall Segment. *Materials:* Wall Remains. *Interpretation:* Retaining Wall. *Period:* Mycenaean? *Location:* North of district known as Rachi Marias. *Description:* Ancient wall described by Wiseman in *Land of the Ancient Corinthians* (1978). Large boulders used. *Investigation Type:* DU Survey and Recorded.[60]

LOCA 9079. *Name:* Kyras Vrysi–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Diachronic. *Location:* Area of West Cemetery extending from the Corinth-Isthmia road to the south. *Description:* High-density artifact scatter. *Investigation Type:* DU Survey and Recorded.[61]

LOCA 9080. *Name:* Perdikaria Villa–West. *Materials:* Villa. *Interpretation:* Settlement. *Period:* Roman. *Location:* Perdikaria. *Description:* High-density field. *Investigation Type:* DU Survey and Recorded.[62]

LOCA 9112. *Name:* Vigla–SIA. *Materials:* Artifact Scatter, Features, and Architecture. *Interpretation:* Settlement and Walls. *Period:* Diachronic. *Location:* Vigla plateau. *Description:* Special Interest Area for Vigla. LOCA includes 8 DUs on large, elevated plateau at the top of Vigla hill. *Investigation Type:* DU Survey, Grab Sample, Recorded, Mapped.[63]

LOCA 9118. *Name:* Kato Vayia–Cairn. *Materials:* Cairn. *Interpretation:* Settlement. *Period:* Bronze Age, Classical–Hellenistic. *Location:* At Kato Vayia, ca. 50 meters west of the geodetic marker. *Description:* A cairn of large cobbles and boulders, associated with pottery. *Investigation Type:* DU Survey, Recorded, Mapped.[64]

LOCA 9119. *Name:* Kato Vayia–Modern House. *Materials:* Building. *Interpretation:* House. *Period:* Modern. *Location:* Upper area of Kato Vayia ca. 30 meters from geodetic marker. *Description:* A modern house constructed in stone masonry, many collapsed roof tiles; evidence of use of mud mortar in the western wall. *Investigation Type:* DU Survey and Recorded.[65]

LOCA 9120. *Name:* Kato Vayia–Cairn. *Materials:* Cairn. *Interpretation:* Settlement. *Period:* Bronze Age, Classical–Hellenistic. *Location:* Kato Vayia, just north and west of geodetic marker on hill. *Description:* Cairn of large cobbles and boulders, with associated pottery; cairn has depression or crater in center. *Investigation Type:* DU Survey, Recorded, Mapped.[66]

LOCA 9121. *Name:* Ayia Paraskevi. *Materials:* Church Remains and Artifact Scatter. *Interpretation:* Church and Settlement. *Period:* Roman–Modern. *Location:* Ayia Paraskevi. *Description:* Known site of ruined church, but multi-period scatter indicates site of considerable complexity. *Investigation Type:* DU Survey and Grab Sample.[67]

LOCA 9122. *Name:* Ayios Athanasios–Aqueduct Opening. *Materials:* Aqueduct. *Interpretation:* Aqueduct. *Period:* Roman. *Location:* Northwest of church of Ayios Athanasios. *Description:* Aqueduct remains, considerable standing architecture and architectural fragments. *Investigation Type:* Recorded.[68]

LOCA 9123. *Name:* Oneion Fortifications–Venetian Wall. *Materials:* Wall. *Interpretation:* Fortification. *Period:* Venetian. *Location:* Mount Oneion. On east side of pass to Galataki. *Description:* Segment of Venetian wall extending to southeast from tower. Some pottery in tumble in tower. *Investigation Type:* Recorded.[69]

Figure 6.12. LOCA 9130. Limestone *kline* at room at ancient site of Kromna. Cf. Figure 7.13. Photo by author.

LOCA 9126. *Name:* Kromna Northeast–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Predominantly Archaic to Late Roman. *Location:* Kromna just to south of the dirt road extending southeast from triple intersection. *Description:* High-density scatter. *Investigation Type:* DU Survey.[70]

LOCA 9127. *Name:* Kato Vayia–Cairn. *Materials:* Cairn. *Interpretation:* Wall or Building. *Period:* Bronze Age, Classical–Hellenistic. *Location:* Kato Vayia at higher elevation. *Description:* Cairn; massive boulders of limestone mark southern border. *Investigation Type:* DU Survey, Recorded, Mapped.[71]

LOCA 9130. *Name:* Kromna–Upper Dining Room. *Materials:* Architecture. *Interpretation:* Dining Room. *Period:* Classical–Hellenistic. *Location:* Ridge in Examilia Quarries. *Description:* Remains of ancient building, probably ritual dining; large cut-stone blocks, perrirhanterion fragment and *kline*. *Investigation Type:* DU Survey, Grab Sample, Recorded.[72]

LOCA 9131. *Name:* Kromna–Lower Dining Room. *Materials:* Architecture. *Interpretation:* Building or Rooms. *Period:* Classical–Hellenistic. *Location:* Examilia Quarries below LOCA 9130. *Description:* Small ancient building cut into limestone bedrock of Examilia Quarries; may be dining room built into a quarried area. *Investigation Type:* DU Survey and Recorded.[73]

Figure 6.13. Olive press basins at Kromna. LOCA 9132. Photo from EKAS Archive.

Figure 6.14. Conglomerate millstone at northwest end of Kromna (LOCA 9134). Photo by author.

LOCA 9132. *Name:* Kromna–Olive Press. *Materials:* Agricultural Equipment. *Interpretation:* Olive Press Equipment. *Period:* Hellenistic–Roman. *Location:* Kromna. *Description:* Olive press equipment cut into limestone outcropping. *Investigation Type:* DU Survey and Recorded.[74]

LOCA 9133. *Name:* Kromna–Wheel Ruts. *Materials:* Ruts. *Interpretation:* Road. *Period:* Ancient. *Location:* Kromna. *Description:* A pair of wheel ruts through limestone bedrock outcropping in the Examilia Quarries. *Investigation Type:* Feature Survey and Recorded.[75]

LOCA 9134. *Name:* Boulberi–Millstone and Artifact Scatter. *Materials:* Agricultural Equipment and Artifact Scatter. *Interpretation:* Olive Press. *Period:* Classical–Roman. *Location:* Boulberi. *Description:* Large conglomerate millstone and high artifact densities (cf. LOCA 9006) on steep ridge side between two DUs. *Investigation Type:* DU Survey and Recorded.[76]

LOCA 9151. *Name:* Classical to Hellenistic Trans-Isthmian Wall. *Materials:* Wall. *Interpretation:* Fortification. *Period:* Classical–Hellenistic. *Location:* Ayios Dimitrios ridge. *Description:* Classical to Hellenistic Wall published by James Wiseman (*Land of the Ancient Corinthians*, pp. 60–61). Classical-Hellenistic tile and pottery; wall runs east for ca. 1,400 meters along line of ridge. *Investigation Type:* Recorded.[77]

Figure 6.15. A section of World War II bunkers during the defense of the Isthmus near Rachi Marias. LOCA 9152. Photo from EKAS Archive.

Figure 6.16. LOCA 9155. Traces of an ancient wall cutting a gravel road at Kromna. Photo from EKAS Archive.

Figure 6.17. LOCA 9155. Traces of an ancient wall cutting a gravel road at Kromna. Photo from EKAS Archive.

Figure 6.18. Classical–Hellenistic fortified farm at Ano Vayia (LOCA 9156). Photo by Kate Pettegrew. Cf. illustration at Open Context.

Figure 6.19. Classical–Hellenistic fortified farm at Ano Vayia (LOCA 9156). Photo by Kate Pettegrew. Cf. illustration at Open Context.

Figure 6.20. Foundations of tower at Classical–Hellenistic fortified farm at Ano Vayia (LOCA 9156). Photo by Kate Pettegrew. Cf. illustration at Open Context.

Figure 6.21. Apse of church at Rachi Zaraka (LOCA 9157). Photo from EKAS Archive.

LOCA 9152. *Name:* Rachi Marias–World War II Installations. *Materials:* Features. *Interpretation:* World War II Installation. *Period:* Modern. *Location:* Rachi Marias. *Description:* World War II military installations. *Investigation Type:* Mapped, Recorded, Grab Sample.[78]

LOCA 9153. *Name:* Perdikaria East–Scatter. *Materials:* Artifact Scatter and Feature. *Interpretation:* Farmstead. *Period:* Classical–Roman. *Location:* Perdikaria. *Description:* Artifact scatter with significant Classical–Roman presence, including rooftile fragments, Roman pottery, some Classical-Hellenistic; architecture turned up by plow. *Investigation Type:* DU Survey.[79]

LOCA 9154. *Name:* Kesimia South–Farmstead. *Materials:* Artifact Scatter and Feature. *Interpretation:* Settlement. *Period:* Classical–Roman. *Location:* Kesimia. *Description:* Artifact scatter with significant Classical–Roman presence. Some cut stone visible. *Investigation Type:* DU Survey.[80]

LOCA 9155. *Name:* Kromna Southeast–Wall Foundations. *Materials:* Walls. *Interpretation:* Building. *Period:* Ancient. *Location:* Kesimia. *Description:* Foundation of ancient building cut by road, visible within the modern road although feature extends beyond into the fields to the south and north. Feature marks stone foundation of a building. *Investigation Type:* DU Survey.[81]

LOCA 9156. *Name:* Ano Vayia. *Materials:* Tower. *Interpretation:* Fortified Farmstead. *Period:* Classical–Hellenistic. *Location:* Ano Vayia, hill above Kato Vayia. *Description:* Classical-Hellenistic tower, building complex, and artifact scatter at peak. Rough polygonal masonry. Associated circular tower. *Investigation Type:* DU Survey, Grab Sample, Recorded, Mapped.[82]

LOCA 9157. *Name:* Rachi Zaraka–Chapel. *Materials:* Walls. *Interpretation:* Chapel. *Period:* Modern. *Location:* Near geodetic marker on ridge of Rachi Zaraka above Lakka Skoutara. *Description:* Small chapel with single nave, apse in east. Early modern building but may have earlier phases. *Investigation Type:* EDU Survey and Recorded.[83]

LOCA 9158. *Name:* Rachi Zaraka–Building. *Materials:* Walls. *Interpretation:* Building. *Period:* Modern? *Location:* Atop the summit of Rachi Zaraka 15 meters east of geodetic marker. *Description:* Remains of building. *Investigation Type:* EDU Survey and Recorded.[84]

LOCA 9160. *Name:* Kakia Rachi–Early Modern House Remains. *Materials:* Buildings. *Interpretation:* Field Houses. *Period:* Early modern. *Location:* Valley between districts known as Kakia Rachi and Limnoula. *Description:* Early modern fieldhouses made of rough field stones but well-built with solid corner blocks. Terrace walls. *Investigation Type:* EDU Survey and Recorded.[85]

LOCA 9161. *Name:* Perdikaria North–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Ancient to Medieval. *Location:* Perdikaria. *Description:* High-density artifact scatter. *Investigation Type:* DU Survey.[86]

LOCA 9162. *Name:* Perdikaria North–Quarried Walls and Tile Scatter. *Materials:* Walls and Artifact Scatter. *Interpretation:* Industrial Area, Settlement. *Period:* Archaic to Late Roman and Early Modern. *Location:* Perdikaria south of Examilia Quarries along Corinth-Isthmia road. *Description:* A wall and cut stone in Examilia Quarries, Corinthian tile fragments, and evidence of early modern structures built against quarry face. *Investigation Type:* DU Survey.[87]

LOCA 9163. *Name:* Perdikaria West–Farmstead. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Farmstead. *Period:* Classical–Roman. *Location:* Perdikaria. *Description:* Artifact scatter and architecture,

Figure 6.22. Abandoned house at Lakka Skoutara. Photo by author.

Figure 6.23. Olive crushing basin at Lakka Skoutara (LOCA 9213). Photo by author.

including cut stone and rubble. Pottery includes large pithos and Corinthian tile fragments, loom weights, Classical fine ware. *Investigation Type:* DU Survey.[88]

LOCA 9164. *Name:* Perdikaria West–Architecture and Artifacts. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Settlement or Farm. *Period:* Ancient. *Location:* Perdikaria. *Description:* High-density artifact scatter in the western part of Perdikaria, including large tiles, plus carved marble architectural fragment and cut stone blocks. *Investigation Type:* DU Survey.[89]

LOCA 9199. *Name:* Lakka Skoutara Central–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Final Neolithic to Early Helladic, and later historic periods. *Location:* Lakka Skoutara. *Description:* High-density scatter with Final Neolithic to Early Helladic material, plus later periods. *Investigation Type:* DU Survey and Gridded Collection.[90]

LOCA 9200. *Name:* Lakka Skoutara–House Structure. *Materials:* Building. *Interpretation:* House. *Period:* Modern. *Location:* Lakka Skoutara. *Description:* Two-roomed modern stone structure foundations, the remains of one of more than a dozen such structures in this valley. *Investigation Type:* Grab Sample, Recorded, Mapped.[91]

LOCA 9213. *Name:* Lakka Skoutara–Olive Crushing Basin. *Materials:* Agricultural Equipment. *Interpretation:* Olive crushing basin. *Period:* Roman. *Location:* Lakka Skoutara near church of Ayia Aikaterini. *Description:* A large circular limestone crushing basin used for olive processing, probably part of a trapetum. *Investigation Type:* Grab Sample, Recorded, Mapped.[92]

LOCA 9214. *Name:* Boulberi Caverns. *Materials:* Underground Cavern. *Interpretation:* Sheepfold. *Period:* Modern. *Location:* Boulberi. *Description:* Underground Cavern used in modern times as animal pen. *Investigation Type:* DU Survey and Recorded.[93]

LOCA 9215. *Name:* Kromna–Sarcophagus. *Materials:* Cut stone. *Interpretation:* Sarcophagus. *Period:* Ancient Historic. *Location:* Kromna. *Description:* Unfinished sarcophagus in Examilia Quarries. *Investigation Type:* Features Survey and Recorded.[94]

Figure 6.24. Sarcophagus in the quarries at Kromna. LOCA 9215. Photo from EKAS Archive.

LOCA 9216. *Name:* Kenchreai Quarries. *Materials:* Limestone cuts. *Interpretation:* Quarry. *Period:* Ancient Historic. *Location:* Panorama above Kenchreai harbor at Ayios Dimitrios Ridge. *Description:* Visible ancient quarries. Widespread and deep quarry cuttings. *Investigation Type:* DU Survey.[95]

LOCA 9217. *Name:* Rachi Simitra–SIA. *Materials:* Roads, helicopter landing. *Interpretation:* Military. *Period:* Modern. *Location:* Above Kenchreai harbor on ridge of Rachi Simitra, an extension of the Ayios Dimitrios ridge. *Description:* Visible traces of modern roads and linear features across ridge; possible helicopter landing area. *Investigation Type:* DU Survey and Recorded.[96]

LOCA 9219. *Name:* Bourtzi–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Diachronic, especially Classical–Roman. *Location:* Bourtzi. *Description:* High-density artifact scatter in area of Bourtzi to the northeast of Kenchreai harbor. Prehistoric to Modern period. *Investigation Type:* DU Survey.[97]

LOCA 9221. *Name:* Perdikaria Villa–East. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Settlement and Church. *Period:* Classical to Medieval. *Location:* Perdikaria below Rachi Boska. *Description:*

Figure 6.25. LOCA 9229. Church and cemetery at Kyras Vrysi. Photo by author.

High-density scatter, architectural material, sub-surface buildings revealed through magnetometry. *Investigation Type:* DU Survey, Grab Sample, Irregular Subunit Survey, Geophysical Survey, Recorded.[98]

LOCA 9227. *Name:* Mount Oneion Slopes–Artifact Scatter. *Materials:* Artifact Scatter. *Interpretation:* Settlement. *Period:* Predominantly Late Roman. *Location:* Upslope (southeast) of the village of Xylokeriza on the lower slopes of northern face of Mount Oneion. *Description:* Historical-period artifact scatter. *Investigation Type:* DU Survey.[99]

LOCA 9228. *Name:* Marougka Villa. *Materials:* Architecture and Artifact Scatter. *Interpretation:* Villa. *Period:* Roman to Medieval. *Location:* South of Marougka on lower slopes of Mount Oneion. *Description:* Roman villa site with medieval remains. Substantial artifact scatter and cut stone of ancient date. Nicknamed "Villa of the Pigdog" during survey. *Investigation Type:* DU Survey, Grab Sample, Irregular Subunit Survey.[100]

LOCA 9229. *Name:* Kyras Vrysi Cemetery–Ayios Ioannis Prodromos. *Materials:* Burials. *Interpretation:* Cemetery. *Period:* Modern. *Location:* Adjacent to church of Ayios Prodromos in Byzantine Fortress at Isthmia. *Description:* Cemetery of Church of Ayios Ioannis Prodromos. *Investigation Type:* Modern Cemetery Recording Form and Mapped.[101]

LOCA 9230. *Name:* Gonia–Mycenaean Pottery Concentration. *Materials:* Artifact Cluster. *Interpretation:* Settlement. *Period:* Mainly Prehistoric, mainly Mycenaean. *Location:* Property south of Gonia Ridge. *Description:* A collection of Mycenaean ceramics (local and imported) from a farmer's lot found while plowing up yard. *Investigation Type:* Recorded.[102]

LOCA 9231. *Name:* Yiriza–Mycenaean Chamber Tombs. *Materials:* Tombs. *Interpretation:* Cemetery. *Period:* Mycenaean. *Location:* Near church of Ayios Athanasios. *Description:* Mycenaean cemetery discovered in 1979, located in saddle between Gonia and Yiriza hills; pottery found among and outside of tombs. Chamber tombs cut into white marl. *Investigation Type:* DU Survey and Recorded.[103]

LOCA 9232. *Name:* Kato Vayia–Classical -Hellenistic Rubble Walls. *Materials:* Walls. *Interpretation:* Tower and Fortification. *Period:* Classical–Hellenistic. *Location:* On the promontory northwest of Kato Vayia site. *Description:* Complex of rubble walls near beach above Lychnari Bay, including stretch of double-faced, large blocks. Pottery mostly Classical -Hellenistic, some Early Bronze Age. Square projections may be towers. *Investigation Type:* DU Survey, Recorded, Mapped.[104]

LOCA 9233. *Name:* Lychnari Tower. *Materials:* Tower. *Interpretation:* Tower. *Period:* Classical–Hellenistic. *Location:* In area of Lychnari above Lychnari Bay at geodetic marker. *Description:* Round structure consisting of three blocks forming semicircle; 10 meters south, a large round tower ca. 7–8 meters in diameter. Artifacts include Classical pottery, Corinthian tiles, pithos sherds. *Investigation Type:* Grab Sample, Recorded, Mapped.[105]

01100010 01110010 01100101 01100001 01101011

The Localized Cultural Anomalies defined in EKAS do not provide a comprehensive set of all archaeological sites of the region but a selection of distinct locations in the landscape that the project archaeologists judged distinct and significant during the course of work. As I will highlight in later discussions, data-centric distributional survey enables the analyst to use a variety of approaches to define archaeological sites according to different attributes. Yet, the LOCAs still have value in providing a window into some of the incredible variety of cultural assemblages in the region from prehistory to the present and in adding another unique layer to the complex datasets of the archaeological survey—locations where our vision focused and collection intensified. That more intensive gaze led to greater resolution in the form of thorough qualitative descriptions and, in some cases, gridded collection.

The reader who seeks to learn more about LOCAs may click on any of the LOCA numbers above to view a fuller description at Open Context, read the overview of LOCAs in the 2001 final project report,[106] or download geospatial and database records at the Linked Media page at Open Context.[107] Let us now turn to the entire collection of data published online.

Endnotes

1 The LOCAs Data Table published at the Linked Media page at Open Context contains links to images, scanned drawings, and photos of each LOCA as well as bibliographic references for sites now published and for investigation methods. Fuller documentation of these investigations is also available through the season reports at that site.

2 https://n2t.net/ark:/28722/k2sn0hh26

3 See especially the detailed description of LOCAs in Timothy E. Gregory, Daniel J. Pullen, and Thomas F. Tartaron, "The Eastern Korinthia Archaeological Survey: A Report to the Ministry of Culture, 2001," Ancient Corinth, 2001.

4 https://doi.org/10.6078/M7571947

5 Tartaron et al., "The Eastern Korinthia Archaeological Survey Project: A Field Manual for the 2001 Season," 2001, 19–22; https://n2t.net/ark:/28722/k2000jx9p.

6 Tartaron et al 2001, 19.

7 Tartaron et al. 2001, 20.

8 Tartaron et al. 2001, 20; https://n2t.net/ark:/28722/k2fx7pw11.

9 https://n2t.net/ark:/28722/k2wm1mg3f

10 https://n2t.net/ark:/28722/k2sn0hh26

11 https://n2t.net/ark:/28722/k2df72g4h

12 Tartaron et al. 2006, 486. Cf. Given and Meyer 2003, 35–36; Kromna (https://www.geonames.org/12514059/kromna.html), Kato Vayia (https://www.geonames.org/12514005/kato-vayia.html), and Vigla (https://www.geonames.org/12514008/vigla.htm).

13 LOCAs defined as part of the research of individual specialists are not included in the online tables or in the catalogue of this chapter. Their publications have made available much of the output of their work, e.g., Rife et al. 2007; Tzortzopoulou-Gregory 2008b, 2010; Tzortzopoulou-Gregory and Rife 2012; Korka and Rife 2022.

14 https://pleiades.stoa.org/places/570316

15 https://n2t.net/ark:/28722/k2xd1795v

16 https://n2t.net/ark:/28722/k2ff43n9r

17 https://n2t.net/ark:/28722/k2sn0hh26

18 https://n2t.net/ark:/28722/k2ff43n9r

19 Gregory, Pullen, and Tartaron, "A Report to the Ministry of Culture, 2001."; https://n2t.net/ark:/28722/k2c541c2k.

20 https://n2t.net/ark:/28722/k2ff43n9r

21 https://n2t.net/ark:/28722/k2w95h95b

22 https://n2t.net/ark:/28722/k20z7hj85

23 https://n2t.net/ark:/28722/k24q87c0z; Kesimia Ridge (https://www.geonames.org/12514083/kesimia.html).

24 https://n2t.net/ark:/28722/k28g8z54q

25 https://n2t.net/ark:/28722/k2d79nz9x; Kromna (https://www.geonames.org/12514059/kromna.html), Examilia Quarries (https://www.geonames.org/12514055/examilia-quarries.html), Corinth (https://pleiades.stoa.org/places/570182), Isthmia (https://pleiades.stoa.org/places/570316), trans-Isthmus wall (https://www.geonames.org/12514074/trans-isthmus-wall.html).

26 https://n2t.net/ark:/28722/k2j10cs56; Boulberi (https://www.geonames.org/12514058/boulberi.html; LOCA 9134: https://n2t.net/ark:/28722/k2cj8r757)

27 https://n2t.net/ark:/28722/k21z4jf7x; Gonia (https://www.geonames.org/12514037/gonia.html)

28 https://n2t.net/ark:/28722/k25q58793; Kato Examilia (https://www.geonames.org/9408783/kato-examilia.html)

29 https://n2t.net/ark:/28722/k29g6024b; Kechries (https://www.geonames.org/260288/kekhries.html)

30 https://n2t.net/ark:/28722/k2f76pw08; Kenchreai Cemetery (https://www.geonames.org/12514048/kenchreai-cemetery.html); Metamorphosis tou Sotiriou (https://www.geonames.org/12514049/metamorphosos-tou-sotiriou.html)

31 https://n2t.net/ark:/28722/k2k07dp4d; Xylokeriza Village (https://www.geonames.org/251521/xilokeriza.html)

32 https://n2t.net/ark:/28722/k2pr84g68; Xylokeriza Cemetery (https://www.geonames.org/12514039/xylokeriza-cemetery.html); Ayios Georgios (https://www.geonames.org/12514038/ayios-georgios.html)

33 https://n2t.net/ark:/28722/k2tf04w96; Examilia Village https://www.geonames.org/262558/examilia.html

34 https://n2t.net/ark:/28722/k2z60vq04; Examilia Cemetery (https://www.geonames.org/12514046/examilia-cemetery.html); Ayios Theodoros (https://www.geonames.org/12514047/ayios-theodoros-of-examilia.html)

35 https://n2t.net/ark:/28722/k2z60vq04; Ayios Dimitrios Ridge (https://www.geonames.org/9408785/ayios-dimitrios.html) Kenchreai harbor (https://pleiades.stoa.org/places/570347) Lagouni (https://www.geonames.org/12514085/lagouni.html)

36 https://www.geonames.org/251521/xilokeriza.html; Examilia (https://www.geonames.org/262558/examilia.html); Xylokeriza Village (https://www.geonames.org/251521/xilokeriza.html)

37 https://n2t.net/ark:/28722/k2bg30z7m

38 https://n2t.net/ark:/28722/k2g73qs10; Church of the Analipsi (https://www.geonames.org/12514031/church-of-analipsi.html)

39 https://n2t.net/ark:/28722/k2m04fk35; Cummer Tomb (https://www.geonames.org/12514073/cummer-tomb.html), Bourtzi (https://www.geonames.org/12514071/bourtzi.html)

40 https://n2t.net/ark:/28722/k2qn6g055

41 https://n2t.net/ark:/28722/k2vd75s7x; Panorama (https://www.geonames.org/9408787/panorama-xylokerizis.html), Classical–Hellenistic (https://n2t.net/ark:/28722/k2v98k29s)

42 https://n2t.net/ark:/28722/k2057wf2j; Kokkina (https://www.geonames.org/12514077/kokkinia.html)
43 https://n2t.net/ark:/28722/k23x8m77v; Kyras Vrysi (https://www.geonames.org/259734/kyras-vrysi.html)
44 https://n2t.net/ark:/28722/k27p9b23k; Kato Vayia (https://www.geonames.org/12514005/kato-vayia.html)
45 https://n2t.net/ark:/28722/k2cg01v5w
46 https://n2t.net/ark:/28722/k2h70rn66
47 https://n2t.net/ark:/28722/k2mw2s318
48 https://n2t.net/ark:/28722/k2rn3gw31
49 https://n2t.net/ark:/28722/k2wd46p6p; West Foundation (https://www.geonames.org/12514056/west-foundation.html)
50 https://n2t.net/ark:/28722/k2154xb38; Vigla (https://www.geonames.org/12514008/vigla.html)
51 https://n2t.net/ark:/28722/k24x5n492
52 https://n2t.net/ark:/28722/k28p6bz1f
53 https://n2t.net/ark:/28722/k2df72r3m
54 https://n2t.net/ark:/28722/k2j39356d
55 https://n2t.net/ark:/28722/k2nv9sz70
56 https://n2t.net/ark:/28722/k2sn0hs2s; Kromna (https://www.geonames.org/12514059/kromna.html)
57 https://n2t.net/ark:/28722/k2xd17k6x; Ayios Kosmas (https://www.geonames.org/9408780/ayios-kosmas.html)
58 https://n2t.net/ark:/28722/k2251z740; Rachi Marias (https://www.geonames.org/12514079/rachi-marias.html)
59 https://n2t.net/ark:/28722/k25x2p17b
60 https://n2t.net/ark:/28722/k29k4pf97
61 https://n2t.net/ark:/28722/k2fb5d80j; Kyras Vrysi (Kyras Vrysi); West Cemetery (https://www.geonames.org/12514057/west-cemetery.html)
62 https://n2t.net/ark:/28722/k2k364236; Perdikaria (https://www.geonames.org/12514081/perdikaria.html)
63 https://n2t.net/ark:/28722/k2pv6tv77; Vigla (https://www.geonames.org/12514008/vigla.html).
64 https://n2t.net/ark:/28722/k2tm7jp4f; Kato Vayia (https://www.geonames.org/12514005/kato-vayia.html)
65 https://n2t.net/ark:/28722/k2zc88h05
66 https://n2t.net/ark:/28722/k2349043k
67 https://n2t.net/ark:/28722/k26t10j66; Ayia Paraskevi (https://www.geonames.org/9408784/ayia-paraskevi.html)
68 https://n2t.net/ark:/28722/k2bk1qb7h; Ayios Athanasios (https://www.geonames.org/12514035/ayios-athanasios.html)
69 https://n2t.net/ark:/28722/k2gb2f49p; Oneion (https://pleiades.stoa.org/places/570532), Galataki (https://www.geonames.org/262146/galataki.html)

70 https://n2t.net/ark:/28722/k2m334z2j; Kromna (https://www.geonames.org/12514059/kromna.html)
71 https://n2t.net/ark:/28722/k2qv3vr9f
72 https://n2t.net/ark:/28722/k2vm4kk55; Examilia Quarries (https://www.geonames.org/12514055/examilia-quarries.html)
73 https://n2t.net/ark:/28722/k20c5968k
74 https://n2t.net/ark:/28722/k24179n03
75 https://n2t.net/ark:/28722/k27s81f2z
76 https://n2t.net/ark:/28722/k2cj8r757; Boulberi (https://www.geonames.org/12514058/boulberi.html; LOCA 9006: https://n2t.net/ark:/28722/k2j10cs56)
77 https://n2t.net/ark:/28722/k2h99g20g; Ayios Dimitrios (https://www.geonames.org/9408785/ayios-dimitrios.html), Classical to Hellenistic Trans-Isthmian Wall (https://n2t.net/ark:/28722/k2vd78g0r)
78 https://n2t.net/ark:/28722/k2n305v57; Rachi Marias (https://www.geonames.org/12514079/rachi-marias.html)
79 https://n2t.net/ark:/28722/k2rv0wp18; Perdikaria (https://www.geonames.org/12514081/perdikaria.html)
80 https://n2t.net/ark:/28722/k2wm1mg3f; Kesimia (https://www.geonames.org/12514083/kesimia.html)
81 https://n2t.net/ark:/28722/k2183mq72; Kromna (https://www.geonames.org/12514059/kromna.html)
82 https://n2t.net/ark:/28722/k2514bh8r; Ano Vayia (https://www.geonames.org/12514006/ano-vayia.html)
83 https://n2t.net/ark:/28722/k28s52b26; Rachi Zaraka (https://www.geonames.org/12514082/rachi-zaraka.html) and Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html)
84 https://n2t.net/ark:/28722/k2dj5s46z
85 https://n2t.net/ark:/28722/k2j96gz3r; Kakia Rachi (https://www.geonames.org/12514075/kakia-rachi.html) and Limnoula (https://www.geonames.org/12514076/limnoula.html)
86 https://n2t.net/ark:/28722/k2st7xj9c; Perdikaria (https://www.geonames.org/12514081/perdikaria.html)
87 https://n2t.net/ark:/28722/k2st7xj9c; Examilia Quarries (https://www.geonames.org/12514055/examilia-quarries.html)
88 https://n2t.net/ark:/28722/k2xg9z02s
89 https://n2t.net/ark:/28722/k2280nm4v
90 https://n2t.net/ark:/28722/k2611cd80; Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html)
91 https://n2t.net/ark:/28722/k29s2371z
92 https://n2t.net/ark:/28722/k2fj2t185; church of Ayia Aikaterini (https://www.geonames.org/12514011/ayia-aikaterini.html)
93 https://n2t.net/ark:/28722/k2k93hv4g
94 https://n2t.net/ark:/28722/k2q247n55

95 https://n2t.net/ark:/28722/k2tq6826p; Kenchreai (https://www.geonames.org/260288/kekhries.html), Panorama (https://www.geonames.org/9408787/panorama-xylokerizis.html), Kenchreai harbor (https://pleiades.stoa.org/places/570347), Ayios Dimitrios (https://www.geonames.org/9408785/ayios-dimitrios.html)

96 https://n2t.net/ark:/28722/k2zg6zv82; Rachi Simitra (https://n2t.net/ark:/28722/k24x5qt10)

97 https://n2t.net/ark:/28722/k2377ph2k; Bourtzi (https://www.geonames.org/12514071/bourtzi.html)

98 https://n2t.net/ark:/28722/k2708d976; Rachi Boska (https://www.geonames.org/12514080/rachi-boska.html)

99 https://n2t.net/ark:/28722/k2br9443m; Mt. Onieon Slopes (https://pleiades.stoa.org/places/570532), village of Xylokeriza (https://www.geonames.org/251521/xilokeriza.html)

100 https://n2t.net/ark:/28722/k2gh9tz01; Marougka (https://www.geonames.org/12514084/marougka.html)

101 https://n2t.net/ark:/28722/k2m90jr18; Kyras Vrysi Cemetery (https://www.geonames.org/259734/kyras-vrysi.html), Ayios Ioannis Prodromos (https://www.geonames.org/12514033/ayios-ioannis-prodromos.html), Byzantine Fortress at Isthmia (https://pleiades.stoa.org/places/206736898)

102 https://n2t.net/ark:/28722/k2qz2k538; Gonia (https://www.geonames.org/12514037/gonia.html)

103 https://n2t.net/ark:/28722/k2vq38z4j; Yiriza (https://www.geonames.org/12514036/yiriza.html), Ayios Athanasios (https://www.geonames.org/12514035/ayios-athanasios.html)

104 https://n2t.net/ark:/28722/k20g40m01; Kato Vayia (https://www.geonames.org/12514005/kato-vayia.html), Lychnari (https://www.geonames.org/258288/ormiskos-linari.html)

105 https://n2t.net/ark:/28722/k2474qd4s; Lychnari Tower (https://www.geonames.org/12514007/lychnari-tower.html) and Lychnari Bay (https://www.geonames.org/258288/ormiskos-linari.html)

106 https://n2t.net/ark:/28722/k2c541c2k

107 https://n2t.net/ark:/28722/k2ff43n9r

Chapter 7
Project Datasets

The advent of the use of computer technologies within archaeological projects in the twenty-first century fundamentally altered the ways that researchers conduct fieldwork, analyze findings, and publish results. Previously, documentation in landscape archaeology had followed a protracted process of recording sites and features via physical notebooks, study over multiple seasons, and publication years later in a physical print journal or book. Today a pervasive digital and mobile culture has transformed workflow. From the initial steps of planning fieldwork, landscape archaeologists use software systems to gather, organize, analyze, parse, study, and link information. In the process of survey, researchers adopt project management software to organize their efforts, geospatial platforms and databases to record digitally, mobile apps to collect data, and use a variety of over-the-counter software to accomplish specialized ends. Digital processes and their data in turn affect the way we think about and publish the archaeological process and record, and therefore invite reflection and critique.[1]

The digital revolution in archaeology has occurred so dramatically in such a short span of time that the scholarship surrounding best practices for data archiving, curation, documentation, management, and refinement is only slowly catching up.[2] Most surveyors, for example, see the need for a long-term plan to archive or preserve data, but do not estimate the work necessary to create datasets that are clean and reusable to other analysts, or that are understandable to specialists with no project connection.[3] Although data development and refinement are processes that demand greater work than is possible in the course of a typical field season, they are absolutely essential to a project's publication: a failure to plan for data work can undermine the long-term preservation of the project's core information, especially as the staff move on to other work and the project drifts to legacy status.


Figure 7.1. Data entry at Dig House at Isthmia in 1999. Photo from EKAS Archive.


Figure 7.2. Data entry and GIS work at Rooms Marinos in Ancient Corinth in 2000. Photo from EKAS Archive.

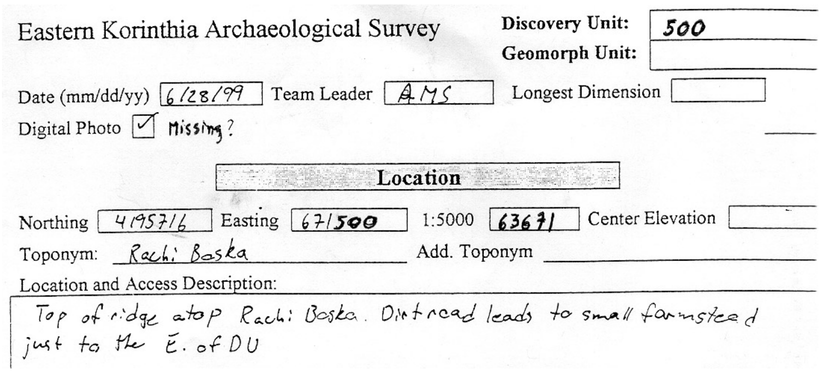
Fortunately, the emergence of sites such as Open Context, Dataverse, The Digital Archaeological Record (tDAR), The Archaeology Data Service (ADS), Dans-Easy, and iDAI, among others, have encouraged new standards for preserving, archiving, and sharing of research data for the long-term, but those also demand a great labor in preparing data for linking, publication, and analysis.[4]

This chapter contributes to this discussion through a case study of refining and publishing data from a twenty-five-year-old survey project that recorded in both digital and analog formats. While my goal in the last two chapters was to make explicit the ways that EKAS teams collected information, here I seek to introduce the datasets and their publication in Open Context.[5] My attention focuses firstly on the processes of curating data, paradata, and metadata for online publication, including decisions made in selecting, discarding, editing, and refining information. I then describe in summary terms the character of the tables, geospatial data, and documents available for analysis, while providing enough information to guide the reader to reuse the data freely available online.[6] In addition to preparing the reader for reuse of open data (Ch. 8), the chapter contributes a case study to a broader discussion about the importance of documentation of process and context in making published data reusable and future study possible.[7]

7.1. Data Refinement and Processing

In the fall of 2020, as the global coronavirus pandemic kept me homebound, I spent an enormous amount of time and energy working to prepare EKAS's legacy datasets for publication and dissemination. My overarching goal in this process was to make data accessible, findable, and reusable in analysis, while remaining true, as much as possible, to the original record of activities and finds. Not all of the survey records were reliably searchable; some had gone missing after a twenty-year hiatus; others were not interoperable; and still others had no evident value for analysis, despite whatever importance we believed they might have. Data refinement marked a long process of pressing usable and meaningful information out of messy digitized survey records. Whereas I had planned for it take two weeks, the data cleanup of this hyper-intensive survey spiraled into six weeks of full-time work—some 300 hours (not including data analysis)—and demanded my attention periodically thereafter through the moment of publication.

All of my work in refining data went above and beyond original data input in 1999–2002. Data entry and digitization efforts were, in fact, mostly completed at the time of survey. Every afternoon, field teams



Eastern Korinthia Archaeological Survey

Discovery Unit: 500
Geomorph Unit:

Date (mm/dd/yy) 6/28/99 Team Leader AMS Longest Dimension
Digital Photo ☑ Missing?

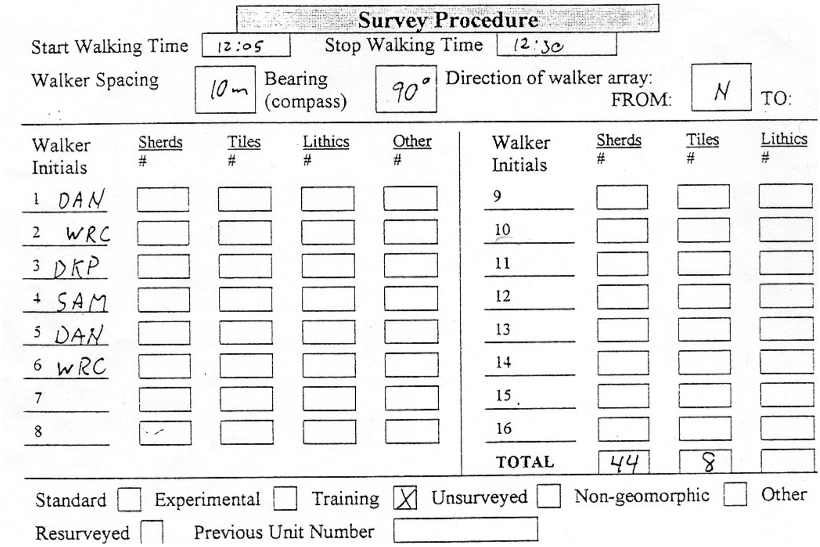
Location

Northing 4195716 Easting 671500 1:5000 63671 Center Elevation
Toponym: Rachi Boska Add. Toponym
Location and Access Description:
Top of ridge atop Rachi Boska. Dirt road leads to small farmstead just to the E. of DU

Figure 7.3. Image of page one of DU form for Discovery Unit 500, the first trial unit surveyed in 1999.

keyed their DU forms in a Microsoft Access database, digitized their survey units in the GIS, and downloaded and labeled photographs. Analysis teams likewise processed photographs and illustrations and keyed their data on a daily or weekly basis. At the end of each season, a computing team gathered finished datasets and disseminated findings to senior staff. In 2002, the same team issued a complete dataset (burned on several CD-ROMs) for all staff. Yet, even with the project staff's commitments to making GIS and databases complete, datasets still required significant work to render them publishable and reusable. My own work centered around curating and refining datasets in several specific ways.

The most important step was curation—that is, defining usable classes of information and deciding which units to publish and which to exclude. Should units that were surveyed in standard ways but were missing their associated finds data be included? What about units in which we collected environmental data but not information about artifacts? How to handle units that served as training ground for field-walkers (Figure 7.1)? What of units that have a full set of data, but were surveyed in irregular or experimental ways, or units surveyed after the main fieldwork ended in 2002? What to do with the DUs that were keyed into the databases but were mistakenly left out of the GIS? My solution ultimately was to exclude units without obvious analytical value (such as unsurveyed units) or clear spatial context (such as unmapped units) while revising the survey unit classification to clearly indicate the collection mode. Defining the survey data was the hardest part since it demanded a big picture view of scattered tables, documents, and files collected, as well as an understanding of their interconnections



Survey Procedure

Start Walking Time 12:05 Stop Walking Time 12:30

Walker Spacing 10 m Bearing (compass) 90° Direction of walker array: FROM: N TO:

Walker Initials	Sherds #	Tiles #	Lithics #	Other #	Walker Initials	Sherds #	Tiles #	Lithics #
1 DAN					9			
2 WRC					10			
3 DKP					11			
4 SAM					12			
5 DAN					13			
6 WRC					14			
7					15			
8					16			
					TOTAL	44	8	

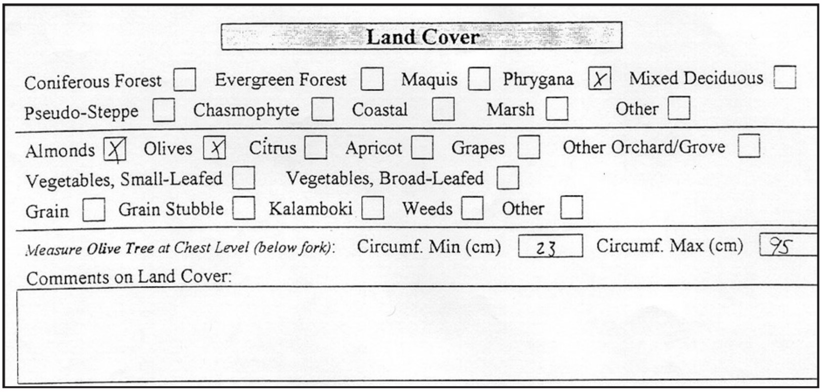
Standard ☐ Experimental ☐ Training ☒ Unsurveyed ☐ Non-geomorphic ☐ Other

Resurveyed ☐ Previous Unit Number

Figure 7.4. Image of page 1 of the unit form for DU 500, a training unit in the 1999 season that did not result in the collection of artifacts. Note the missing artifact sub-tract artifact values for individual walkers. Such irregularities in unit type and missing data have to be tackled on a case-by-case basis.

through unique identifying numbers and short-text fields. How many times I thought I had finalized data only to open a new table and discover missing records that redefined the broad picture!

Defining and categorizing the set turned out to be only one of several obstacles to navigate in the process of rendering information publishable and reusable. More data was missing than I could have guessed. How could data go missing (I asked myself) when we had so many different copies on file? As one example, I noticed soon into the process that the 1999 Discovery Unit tables consistently lacked long-text comments; other fields from that first year of survey had been migrated successfully into the main survey database that had been distributed to project members in 2002. Locating the lost comments fields data turned into a comical digital excavation of the impractical: tracking down the original survey database from the 1999 season, downloading sunsetted versions of Microsoft Access to open up twenty-year old files, and migrating data one version at a time. Even then the process was hardly straightforward, as the survey forms used during that first season were slightly different than those of later years (see Figure 5.5), involving, for example, a "modern sweep" form where recorders noted observations about modern features (which would,



Land Cover

Coniferous Forest [ ] Evergreen Forest [ ] Maquis [ ] Phrygana [X] Mixed Deciduous [ ]
Pseudo-Steppe [ ] Chasmophyte [ ] Coastal [ ] Marsh [ ] Other [ ]

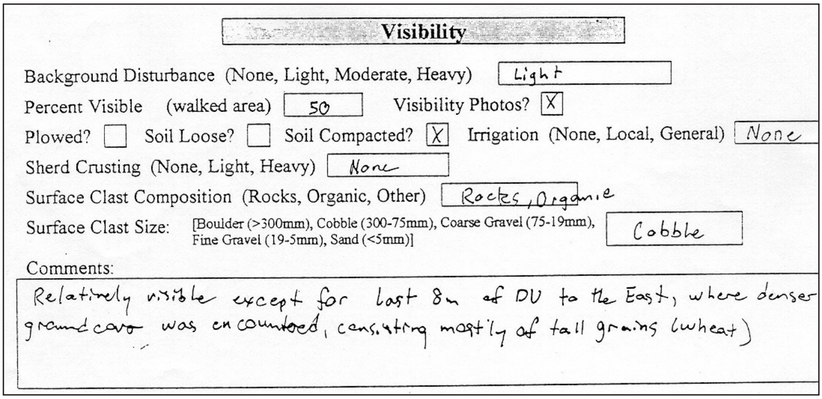
Almonds [X] Olives [X] Citrus [ ] Apricot [ ] Grapes [ ] Other Orchard/Grove [ ]
Vegetables, Small-Leafed [ ] Vegetables, Broad-Leafed [ ]
Grain [ ] Grain Stubble [ ] Kalamboki [ ] Weeds [ ] Other [ ]

Measure Olive Tree at Chest Level (below fork): Circumf. Min (cm) 23 Circumf. Max (cm) 75
Comments on Land Cover:

Figure 7.5. Image of the analog original of the top of page 2 of the DU form for training unit DU 500.

in later years, be recorded on the Features form). Still other data was never even recorded: I reclaimed a fair bit of lost binary data by looking at "Yes/No" checkbox fields related to land cover and comparing them with descriptive land-cover comments.[8] Finalizing records also meant creating new fields for data that appeared constantly in long-text comments,[9] and eliminating fields without associated data.[10]

Categorization and missing information were obvious things to fix, but I spent days on other processes, such as reclaiming the integrity of data to make values standard, searchable, and clear. It was natural for field teams to make mistakes related to spelling, naming, or input as they were transcribing physical fieldnotes into a Microsoft Access form at the end of exhausting days of working, swimming, and playing under a baking Mediterranean sun. But such mistakes can render data unusable, especially in short-text or quantifiable numeric fields. A field defined in a database as a number—such as an estimate of surface visibility (in increments of 10) or the meters separating each fieldwalker—cannot have alphabetic values (e.g., "10 m.") without altering the character of the field: the text must be removed if the goal is to average or sum.[11] Even short text data types had to be standardized in order to facilitate consistent queries and counts. Two different spellings of the same toponym ("Perdikaria" vs. Perdhikaria), or the use of different toponyms in different survey units for the same area (e.g., Perdikaria for DU 1101, Kromna for DU 1102) may undercut reuse. I passed some mind-numbing hours standardizing spelling and naming in order to reclaim damaged data, and adding new data fields (like area and density, for instance) that would support analytical work.



Visibility

Background Disturbance (None, Light, Moderate, Heavy) Light

Percent Visible (walked area) 50 Visibility Photos? X

Plowed? Soil Loose? Soil Compacted? X Irrigation (None, Local, General) None

Sherd Crusting (None, Light, Heavy) None

Surface Clast Composition (Rocks, Organic, Other) Rocks, Organic

Surface Clast Size: [Boulder (>300mm), Cobble (300-75mm), Coarse Gravel (75-19mm), Fine Gravel (19-5mm), Sand (<5mm)] Cobble

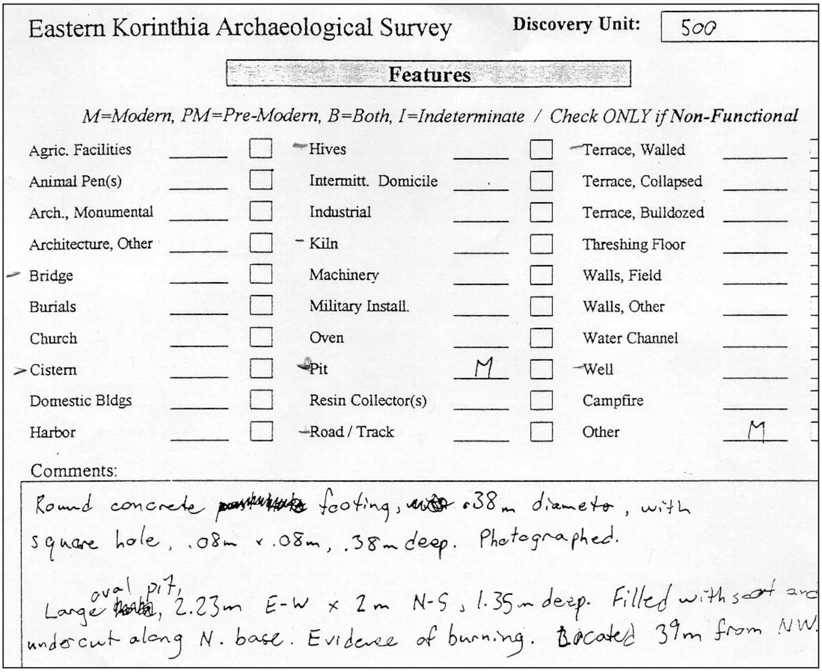
Comments:

Relatively visible except for last 8m of DU to the East, where denser groundcover was encountered, consisting mostly of tall grains (wheat)

Figure 7.6. Image of the analog original of the bottom of page 2 of the DU form for the training unit DU 500. Note the difficult legibility. Note how multiple responses ("Rocks, Organic") in the Surface Clast Composition box might create problems at the stage of data refinement, or how "tall grains (wheat)" are noted in the Comments but not checked under Land Cover. These are the sorts of details that must be worked through in data refinement.

Finally, my process involved cleaning survey data for a neater presentation. While editing long-text data types (like comments) is less important than getting numeric or categorical data right, it seemed responsible to polish data for publication. Thus, I adopted title case for field names and sentence case for values; spelled out abbreviations as much as possible, using the long forms of cardinal and inter-cardinal directions ("SW" became "Southwest"); ran spelling and grammar search on short and long text data types and minimized the use of special characters (like "?" and "="); and consolidated comments, eliminated redundant text, and moved text from one field to another when appropriate.[12] In a few instances, I removed from long-text fields comments that were confusing or had no obvious value for analysis today (e.g., a note recorded on a survey unit form informing the artifact processing team about where the artifact bag was left in the field). I also adopted prefixes in some tables with too many fields to create internal structure and organization (e.g., *Agricultural, Aloni* refers to a threshing floor, an example of an agricultural feature).

Despite the extensive work in retrieving lost data, deleting irrelevant information, and cleaning up messes, I sought constantly to retain the integrity of the original record, provided that doing so did not undermine the datasets' analytical value. For example, I made no effort to update original in-field interpretations that were made in comments fields even when I knew the more complete story that had unlocked



Eastern Korinthia Archaeological Survey **Discovery Unit:** 500

Features

M=Modern, PM=Pre-Modern, B=Both, I=Indeterminate / Check ONLY if Non-Functional

Agric. Facilities		☐	Hives		☐	Terrace, Walled		☐
Animal Pen(s)		☐	Intermitt. Domicile		☐	Terrace, Collapsed		☐
Arch., Monumental		☐	Industrial		☐	Terrace, Bulldozed		☐
Architecture, Other		☐	Kiln		☐	Threshing Floor		☐
Bridge		☐	Machinery		☐	Walls, Field		☐
Burials		☐	Military Install.		☐	Walls, Other		☐
Church		☐	Oven		☐	Water Channel		☐
Cistern		☐	Pit	M	☐	Well		☐
Domestic Bldgs		☐	Resin Collector(s)		☐	Campfire		☐
Harbor		☐	Road / Track		☐	Other	M	☐

Comments:

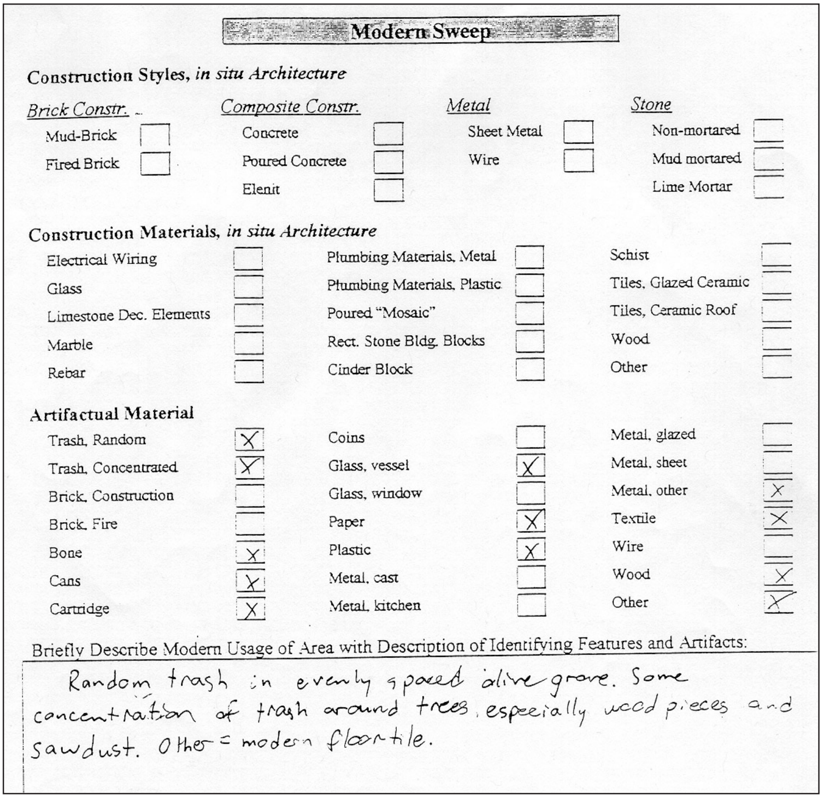
Round concrete ~~[illegible]~~ footing, .38m diameter, with square hole, .08m x .08m, .38m deep. Photographed.

Large oval pit, 2.23m E-W x 2m N-S, 1.35m deep. Filled with soot and undercut along N. base. Evidence of burning. Located 39m from NW

Figure 7.7. Image of analog archaeological records. Such records are often messy and present challenges at digitization stage. The messiness of this 1999 Features form (originally filled out by the author of this work) demanded a careful eye in transcription.

initial puzzles, deciding that these could be explained more completely in publication. I retained long-text description as it was recorded on survey forms except in cases where it was completely incomprehensible (reasoning that if I could not make sense of it, no one else could either). I also retained the human flavors of fieldwork, analysis, and recording that seasoned the comments field of original forms. One recorder wrote "oink, oink!!" in the comments box of a unit surveyed near a slaughterhouse. Another began to play with the field comments, naming units "Scaryland" or "Phrygana Land," and dropping lyrics of old songs by The J.B.'s. In the comments of the *Finds Data Table*,[13] analysts expressed their displeasure at discovering a rubber shoe sole in the artifact bag: "DU team trying to be cute but failing." Such bits scattered across the different descriptive fields of the data tables are a reminder of the convivial and human aspects of fieldwork and analysis.

Refining and preparing data for reuse and publication in fact continued well beyond my initial push in fall of 2020. Collaborating with the editors in chief at Open Context (Sarah Whitcher Kansa and Eric Kansa) required significant investment of time from all of us to



Modern Sweep

Construction Styles, *in situ Architecture*

Brick Constr.		*Composite Constr.*		*Metal*		*Stone*	
Mud-Brick	[ ]	Concrete	[ ]	Sheet Metal	[ ]	Non-mortared	[ ]
Fired Brick	[ ]	Poured Concrete	[ ]	Wire	[ ]	Mud mortared	[ ]
		Elenit	[ ]			Lime Mortar	[ ]

Construction Materials, *in situ Architecture*

Electrical Wiring	[ ]	Plumbing Materials, Metal	[ ]	Schist	[ ]
Glass	[ ]	Plumbing Materials, Plastic	[ ]	Tiles, Glazed Ceramic	[ ]
Limestone Dec. Elements	[ ]	Poured "Mosaic"	[ ]	Tiles, Ceramic Roof	[ ]
Marble	[ ]	Rect. Stone Bldg. Blocks	[ ]	Wood	[ ]
Rebar	[ ]	Cinder Block	[ ]	Other	[ ]

Artifactual Material

Trash, Random	[X]	Coins	[ ]	Metal, glazed	[ ]
Trash, Concentrated	[X]	Glass, vessel	[X]	Metal, sheet	[ ]
Brick, Construction	[ ]	Glass, window	[ ]	Metal, other	[X]
Brick, Fire	[ ]	Paper	[X]	Textile	[X]
Bone	[X]	Plastic	[X]	Wire	[ ]
Cans	[X]	Metal, cast	[ ]	Wood	[X]
Cartridge	[X]	Metal, kitchen	[ ]	Other	[X]

Briefly Describe Modern Usage of Area with Description of Identifying Features and Artifacts:

Random trash in evenly spaced olive grove. Some concentration of trash around trees, especially wood pieces and sawdust. Other = modern floor tile.

Figure 7.8. Image of a sample Modern Sweep form filled out in 1999. Notice the amount of modern trash in this unit and the redundancy of the written comments. This was typical for the survey region generally. EKAS staff decided not to retain this page in subsequent seasons.

fine-tune, validate, and update datasets from 2021–2023. Publishing archaeological research data requires great work in preparing, editing, and improving data, but that work is necessary if we want to share our datasets in a way that others can use. As a process of pushing out better, more reliable versions, the publication of data also ought to be an ongoing one.[14] I anticipate that the EKAS datasets may continue to develop as we fix mistakes and misidentifications and post new materials and documentation that come to light.[15] We will use the project landing page to communicate problems of validation, quality, or replication and provide any updates in versions over time.[16]

The process of refining and preparing EKAS datasets for publication since 2020 has resulted today in better datasets that are findable, accessible, interoperable, and reusable. Cleaned and polished, they provide a range of information for considering land use and habitation of Corinthian territory and the distribution of artifacts, features, and environmental conditions. Having provided this cursory view of my data refinement processes, I will now provide a brief tour of the EKAS data published in Open Context,[17] downloadable media (9 data tables, 6 GIS shapefiles, and 50 documents),[18] and over 7,000 photos and illustrations of survey units and artifacts. A thorough description of metadata and field definitions is available in Appendix II.

7.2. Discovery Unit Data Tables

The *Discovery Unit* tables contain data from 1,411 separate survey units. In curating data for publication, I have divided the data from the original multi-page survey form into 4 distinct tables linked together by the unique Discovery Unit number. These unit tables contain all the different *classes* of survey units except for LOCAs, which are organized into their own tables.

The first of the *Discovery Unit* tables (*Location Data Table*) preserves information recorded on the first page of the DU form (cf. Figure 3.7).[19] Besides the DU number and class, this table includes date of survey, the team leader in charge (typically the recorder), the toponym(s) of the district under survey, the identifying number of the topographic map associated with the district,[20] and a long description of location and access (see DU 7007 as an example).[21] The table also includes other original locational information such as a UTM Northing value and Easting value and elevation (meters above sea level), although I have updated the UTM values (originally recorded with imprecise GPS units) using the values automatically generated from the centroids of the polygons in the GIS.[22] In place of the "longest dimension" value recorded at the time of survey,[23] I have instead used minimum bounding geometry (MBG) values calculated through ArcGIS. These include the MBG length ("the longest distance between any two vertices of the convex hull"), and MBG width ("the shortest distance between any two vertices of the convex hull" where a *convex hull* is "the smallest convex polygon enclosing an input feature").[24] Finally, the table includes the area of the unit calculated via the polygon in GIS.

The second survey unit table (*Environmental Data Table*) contains information related to the environmental contexts of the survey units, recorded mostly on the second page of the Discovery Unit form (cf. Figure 3.8).[25] This table generally lists most of these variables in terms of presence (TRUE) or absence (FALSE) but uses numeric values for a couple of fields (surface visibility and olive tree circumference), short-text values for several fields (e.g., soil compaction, clast,

Figure 7.9. Rubble foundations of early modern structure at Kato Vayia (DU 3014). Photo from EKAS Archive.

Figure 7.10. Trapetum orbis in field wall on Isthmus, photographed in June 2000. Photo from EKAS Archive.

Figure 7.11. Ancient cut stones used in terrace wall at DU 2558. Photo from EKAS Archive.

Figure 7.12. The "Mycenaean" fortification wall near Isthmia in DU 2124. Photo from EKAS Archive.

Figure 7.13. A cut stone with concave surface, probably used as *kline* in a room at Kromna. LOCA 9130. Cf. Figure 6.12. Photo by author.

Figure 7.14. A pair of grooves that run through bedrock at Kromna, probably wheel ruts. Photo from EKAS Archive.

Figure 7.15. Bill Caraher documenting a cistern at Lakka Skoutara in 2003. Photo by author.

clast size, disturbance), and long-text values for land cover and land use comments (see, as an example, DU 7007 land cover and land use tabs). The fields of this table largely reflect the original recorded values, although I removed some fields that lacked any positive values and converted several "Yes/No" boxes to Short-Text categories. I also added Geomorph-Unit fields in order to create links with the related GU in the *Geomorphology Data Table* where the user will find other kinds of environmental information collected by the geomorphology team.[26] Because most of the data in *Environmental Data Table* can be aggregated, a user could easily compare different variables of environment to artifact densities of the *Procedure-Counts Data Table*.[27]

The third unit table (*Procedure-Counts Data Table*) contains information about survey methods, techniques, and artifact counts that were all originally recorded on the first page of the Discovery Unit form (Figure 3.7).[28] It tabulates start and stop time, walker spacing, walker bearing, and walker array (i.e., the direction from which and to which walkers lined up) as well as the count of sherds, tiles, lithics, and other artifacts per individual fieldwalker and a sum of these counts. For analytical purposes, I have also added a duration field (the value of stop time minus the value of start time), a count of walker transects (transect-count), total count of objects read by artifact processing teams (total read), and a putative total density of artifacts per hectare (total density) as well as a density of classes (pottery, tile, lithics, and other types).[29] The data in this table has analytical potential for queries related to matters such as sub-tract density data (i.e., changing densities within an individual survey unit), survey efficiency (how quickly field teams surveyed the unit in light of surface area), and walker spacing. I will return to this in later chapters (Ch. 9 and Ch. 10) when I reflect on the character of artifact scatters and distributional patterns.

A fourth table (*Features Data Table*) presents information about features observed and described in the survey, originally recorded on the third page of the Discovery Unit form (cf. Figure 3.9) and also (in the case of the 1999 survey form) on a fourth page known as the Modern Sweep form (cf. Figure 3.10)—a form that was abandoned after the initial season.[30] The table includes forty different feature types categorized by functional class. A positive value for an individual field indicates the presence of that feature in the unit. The values correspond to the estimated dating of the feature, where "PM" = premodern period, "M" = modern period, "I" = indeterminate age, and "B" = both premodern and modern features of a class. To improve organization and order for these features, I added functional prefixes: *Agricultural* indicates an agricultural feature, *Architectural* an architectural feature, *Domestic* a domestic feature, *Special Purpose Features* a special purpose feature, and *Transportation* a feature related to transportation. I also eliminated from the original form any fields lacking at least one positive value, and added a number of new fields, such as Greenhouse, Fence, Cut-Stone, and Quarry, to record the presence or absence of features that lacked their own category but were consistently described in the generic "Other" category of the original survey form.[31]

Collectively, the four tables above mark the main substance of the distributional survey of the field teams. Linked both to one another and to other data by a common identifier (the DU number), they contain the basic information about EKAS spatial units.

7.3. Zones Data Table

Survey zones were not a category of the original survey but one that I created as a heuristic to make possible comparative analysis and discussion.[32] For this book, I created two types of zones (Figure 7.16): standard survey zones (1–50) and non-standard zones (51–60), both of which are compiled in a single *Zones Data Table*.[33]

I defined standard survey zones to respect specific principles. First, zones combine contiguous units and are therefore localized; they do not group areas separated by significant distances. Second, zones have similar geomorphological profiles in respect to attributes such as morphostratigraphic units, soil stability, erosion, modern disturbance, and elevation; while geomorphic micro-variations from unit to unit create some variation within each zone, I prioritized splitting zones along lines reflecting different natural strata. Third, zones respect obvious archaeological features and sites such as the line of the trans-Isthmus Hellenistic fortification wall.[34] Fourth, zones fall into an ideal area range of 5–10 hectares (or 50,000–100,000 m^2); the average zone has an area of about 8 hectares, i.e., 80,000 m^2, or about 280 x 280 meters. Dividing the survey region in this way effectively creates a broad-based approach to mapping density and smoothing variability in Discovery Units and thereby forms an important basis for discussing artifact patterns in intelligible ways (Section 9.2).

Standard zones cover a range of natural and cultural conditions and include the slopes of Mount Oneion (Z1, Z2, Z3);[35] the area east-northeast of Xylokeriza Village (Z4, Z5, Z6, Z7); the plateau of Rachi Boska (Z8, Z9, Z10, Z11, Z12);[36] the low-lying fields of Perdikaria east of Examilia Village (Z13, Z14, Z15, Z16);[37] the districts of Kromna (Z18, Z20, Z21, Z22),[38] Kesimia (Z17, Z19),[39] and Boulberi (Z23, Z24)

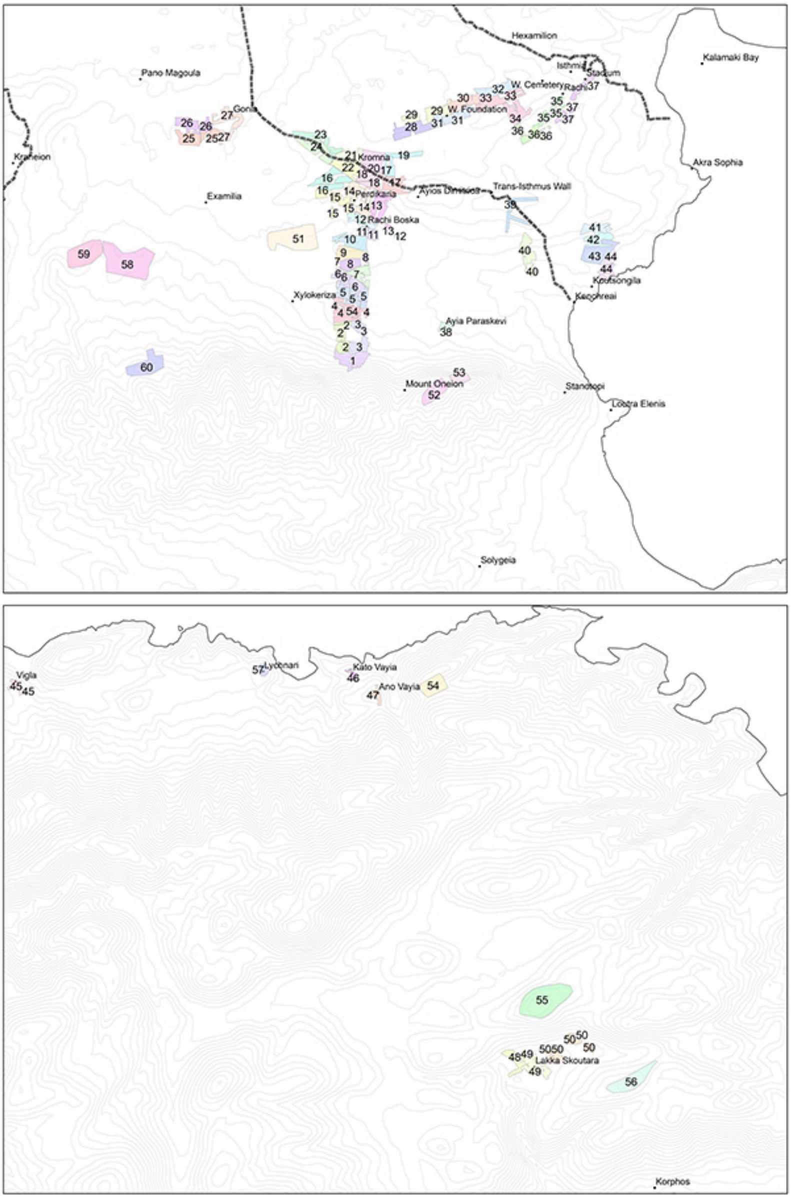


Figure 7.16. The fifty standard zones (1–50) of the eastern Corinthia plus ten non-standard zones (51–60) on the Isthmus and in the southern Corinthia.

along the Examilia Quarries and trans-Isthmus fortification wall;[40] the districts of Yiriza (Z25, Z26) and Gonia (Z27), associated with prehistoric sites, and the early modern village of Kato Examilia; areas along the Corinth-Isthmia road, including Ayios Kosmas (Z28, Z29) and the excavated West Foundation (Z30, Z31);[41] low-lying districts surrounding Isthmia (Z32, Z33, Z34, Z37) as well as the ridge of Rachi Marias (Z35, Z36);[42] Ayia Paraskevi (Z38);[43] the coastal and ridgetop areas around Kenchreai (Z39, Z40, Z41, Z42, Z43, Z44);[44] the coastal zones of Vigla (Z45) and Vayia (Z46, Z47);[45] and the southeastern Corinthian valley of Lakka Skoutara (Z48, Z49, and Z50).[46] In creating these zones, I have assigned each an average visibility and density based on the weighted aggregate of survey units within the zone.

The non-standard zones (Z51, Z52, Z53, Z54, Z55, Z56, Z57, Z58, Z59, Z60) include other areas surveyed in non-standard ways, such as extensive, experimental, and revisit units.[47] None of these non-standard zones have reliable density figures but the data do give glimpses of the habitation in those areas at different points of time.

The *Zones Data Table* presents data for 50 standard zones and 10 non-standard zones.[48] The table includes the name of the zone, associated toponym, and surface area for all 60 zones. In respect to the standard zones, the table also includes minimum and maximum elevation average surface visibility, weighted surface visibility, weighted artifact density, and weighted artifact density calibrated for surface visibility.[49] The table can be connected with the related GIS file to plot in space.

7.4. Localized Cultural Anomalies Data Tables

Localized Cultural Anomalies were subjective interpretive categories used to designate places of special interest that warranted further archaeological investigation (Ch. 6).[50] The data gathered in the two LOCAs data tables consolidates information originally scattered across several data tables and forms.

The first of the tables (*LOCAs*) presents 88 areas of special interest defined during and after survey.[51] It simplifies and systematizes the most important information related to these LOCAs: name and description,[52] dominant periods,[53] associated discovery units, locational information (e.g., area,[54] Northing and Easting,[55] topo-map,[56] and elevation),[57] and data related to gridded survey (in the case of a dozen gridded LOCAs).[58] Apart from the numerical locational data, the fields are defined wholly as short or long-text data types and are not quantifiable. The table, rather, gives an overview of the LOCAs as a qualitative category and can be connected with the related GIS file to plot in space.

A second table (*LOCAs-Grids Data Table*) presents information related to the dozen LOCAs that were investigated through more intensive sub-unit collection.[59] In most cases, sub-collecting meant imposing a 10 x 10 grid over part of the LOCA and sampling sub-units through one or more intensive strategy of artifact identification. In a few cases, teams employed irregular grids and other strategies of sampling material from surfaces. This table provides original data collected from the sub-units, which are linked via the LOCA number to polygons in a related GIS LOCA shapefile and to finds in the *Finds Data Table* (e.g., artifacts recorded in the finds table under Survey-Unit 9007 and Sub-Unit 117 are associated in the *LOCAs-Grids Data Table* with GS-ID number 9007_117).[60] This table, then, contains quantifiable data for a few select areas of the survey territory and has value in creating higher-resolution windows into high-density areas. Since gridded collection of LOCAs in many cases used different surface sampling strategies (e.g., total collection), it also provides a point of comparison for chronotype sampling.

7.5. Geomorphology Data Table

The *Geomorphology Data Table* contains information collected between 1999 and 2001 by geomorphologists about the Geomorphic Units (GUs) of the territory.[61] In general, these correspond closely to the areas covered by the survey units because team leaders worked daily with the geomorphologists to define units to respect real differences in slope, land use, and natural and anthropogenic processes. GUs consistently cover the same ground as DUs, although their shapes and sizes are not always identical to that of the DUs (cp. Discovery Units and Geomorphic Units at Open Context).[62] The information in this table represents original data collected by geomorphologists and refined in 2020 to create standardized terms. I have left the fields of this table unchanged and only refined values. The season reports produced by the geomorphologists as well as the geomorphology forms at the Linked Media page provide more information about the terms of collection.[63] The *Geomorphology Data Table* may be joined to survey units via the Geomorph-Unit field of the *Environmental Data Table*. It may be joined to the GIS data through the *Geomorphic Units GIS* shapefile.[64]

7.6. Finds Data Table

The *Finds Data Table* contains all of the unique identifications of finds from all collection units, including different classes of Discovery Units and LOCAs.[65] The records of this table are organized by a unique *Object-ID*, a ten-digit value that corresponds to the survey unit number + sub-unit number + item number.[66] The data in this table is linked via the Survey-Unit field to the *Discovery Unit* tables, LOCAs data tables, and *GIS* shapefiles (*Discovery Units GIS*, *Extensive Units GIS*, *Localized Cultural Anomalies (LOCA) GIS*, and *Localized Cultural Anomalies (LOCA) Grid Unit GIS*) via the zone field to the *Zone GIS* shapefile.[67] An analyst may quantify the data of this table, counting or summing the number of chronotypes, materials, or periods, but should keep two things in mind. First, the item number typically refers to a unique chronotype identified in the unit and sub-unit but may contain more than one example of that chronotype (and therefore have a *quantity* greater than one) in cases where the team picked up multiple examples of the same chronotype. Second, because the table lists all survey units and LOCAs, even in cases where no finds were identified, the 25,646 unique Object-ID numbers in the table do not correspond neatly to 25,646 individual finds. A database program enables easy querying, counting, and totaling of the different fields.

In addition to short text fields related to the quantity of individual chronotypes, the *Finds Data Table* contains information about the nature of its identification (noting the artifact analysts, read dates, and present locations), additional long-text comments, and the availability of photos and drawings.[68] In cases of photographed and illustrated objects, there are unique photo and drawing number links to Open Context digitized photos and drawings. See, for example, Object-ID 9002003323.[69]

7.7. Geospatial Data

The publication of survey records at the EKAS Linked Media Page in Open Context includes six geospatial files that complement the data tables and locate different kinds of survey units in space.[70] All GIS shapefiles were created using the WGS 1984 Coordinate System, UTM Zone 34N.

- *Discovery Units GIS* shapefile shows the location of all survey units of different classes except for Extensive Discovery Units and LOCAs. The data of this shapefile can be joined to the Units tables through the DU field.[71]

- *Extensive Units GIS* shapefile shows the location of extensive survey units of the original survey. I separated extensive units from the other kinds of Discovery Units because in some cases they overlap exactly with standard survey units, which complicated presentation as a single shapefile within the GIS. The data of this shapefile can be joined to the *Units* tables through the DU field.[72]

- *Geomorphic Units GIS* shows the locations and attributes of all Geomorphic Units. The data of this shapefile can be joined to the *Geomorphology Data Table* through the GU field.[73]

- *Localized Cultural Anomalies (LOCA) GIS* shapefile shows the locations of LOCAs as polygons. The file includes all LOCAs except for the three Special Interest Areas (Kromna, Vayia, and Vigla), which are broadly defined areas that overlap with more focused LOCAs in those districts. The data of this shapefile can be joined to the *LOCAs Data Table* through the Unit field.[74]

- *Localized Cultural Anomalies (LOCA) Grid Unit GIS* shows the locations of sub-units at a dozen LOCAs investigated through more intensive modes of survey. The data of this shapefile can be joined to the *LOCAs-Grids Data Table* through the GS-ID field.[75]

- *Zone GIS* shows the location of survey zones. Although these zones were not part of the original survey, I created them to facilitate analysis of artifacts in the landscape (Section 7.3). The zone field of this shapefile joins to the zone field of the *Finds Data Table*.[76]

The other fields included in these shapefiles correspond to fields copied from the various data tables to which they link. Only the FID and geometry fields (e.g., area and MBG) are truly unique, generated by ArcGIS as attributes of the polygons.

7.8. Photographs and Illustrations

Besides tables and geospatial data, a major dataset now available through Open Context is a collection of over 7,000 digital photographs and illustrations of contexts and finds. Some 3,831 original photos of survey units and LOCAs, plus 42 drawings or plans of features, may be joined to 2 tables (*Location Data Table* and *LOCAs*) and 2 GIS shapefiles (*Discovery Units GIS* and *Extensive Units GIS*) via a unique identifier for those digital objects;[77] they show, variously, survey units, ground visibility, fieldwork shots, and features. In addition, 2,156 drawings and 1,460 photographs of artifacts may be associated with the *Finds Data Table* through unique identifiers.[78] These provide both a check on the project's identifications and an opportunity for further study.

7.9. Documents

A final class of information published via the Linked Media Page at Open Context are fifty separate documents related to the EKAS project.[79] Some of these documents were original forms used for field recording, and others were manuals outlining procedures and processes. The largest class of documents are reports that the project required all supervisors to submit at the end of each season. They summarize the work carried out in different sectors of the project. These reports include a fulsome summary of work written in fall 2001 for the Greek Ministry of Culture following the completion of the main phase of survey.[80] I have left these documents mostly unedited, only standardizing formatting and, in a few instances, cutting details that could be considered sensitive or unsuitable for public sharing.

01100010 01110010 01100101 01100001 01101011

The record created by the survey, translated into digital context, and now published in Open Context, provides a rich and robust view of an intensive survey carried out in the eastern Corinthia, most notably in the districts near Isthmia, Kenchreai, Gonia, and Kromna. The data creates various windows or layers for analyzing diachronic land use and settlement at the busy crossroads of the center of Greece and, during historic times, the suburban territory of one of the ancient world's greatest cities. The intensity of data collection, including studies of environment, documentation of the modern landscape, gridded survey, collection of features, and survey experiments, also provides opportunities for various kinds of analysis and comparison of different variables that impact artifact densities. For the convenience of the reader, let us now turn to consider the range of ways that one may engage with the project datasets.

Endnotes

1 Garstki 2022b, 1–3. Cf. Caraher 2022.

2 de Haas and van Leusen 2020; essays in Garstki 2022a.

3 See Strupler 2021 for challenges of reusing survey datasets from the eastern Mediterranean to replicate archaeological inferences.

4 Kansa, Kansa, and Arbuckle 2014 helpfully outline the multiple steps and process necessary to prepare raw archaeological datasets for reuse. See: Open Context (https://opencontext.org/), Dataverse (https://dataverse.org/), The Digital Archaeological Record (tDAR) (https://core.tdar.org/), The Archaeology Data Service (ADS) (https://archaeologydataservice.ac.uk/), Dans-Easy (https://dans.knaw.nl/en/data-services/easy/), and iDAI (https://idai.world/).

5 https://n2t.net/ark:/28722/k25d97c30

6 More detailed descriptions of data fields are published in Appendix II.

7 See, for example, Kansa, Kansa, and Arbuckle 2014; de Haas and van Leusen 2020; Rabinowitz 2022.

8 For example, I queried the word "*olive*" noted in comments and checked against the Land Cover, Olives field. https://n2t.net/ark:/28722/k2xd19w0w

9 For instance, there was no checkbox on the survey form for cut stone blocks or rock piles, but these features showed up consistently in the comments data. Because it would be useful to query and spatially plot units with recorded examples of cut stone or rock piles, I created new fields to designate those feature categories.

10 As one example, while field teams expected to find features such as Iconstasis and Kiln during survey, we recorded no actual examples of either during intensive survey.

11 For example, surface visibility (https://n2t.net/ark:/28722/k2tm7mz79) values that were supposed to be entered as 10% increments, but were actually recorded as ranges or irregular values (85%), were rounded up to the nearest tenth and standardized as numbers.

12 The survey form originally contained eight different boxes for comments. Recorders in some cases repeated information between boxes or recorded certain kinds of information (about artifact densities, for example) in different boxes. To make data usable, I reduced the number of comments boxes to six fields and moved qualitative description to fields that were most appropriate.

13 https://doi.org/10.6078/M7DR2SM1

14 On the importance of updating datasets to improve replication and study, see Kansa, Kansa, and Arbuckle 2014; Strupler 2021.

15 In the process of finalizing this book, for example, I discovered archival materials and photographs related to the project that were not part of the original data distribution in 2022. Some of these materials will be archived at the Michigan State University Isthmia Excavation Archives in East Lansing, while others may be digitized and published online.

16 https://n2t.net/ark:/28722/k25d97c30

17 https://n2t.net/ark:/28722/k25d97c30

18 https://n2t.net/ark:/28722/k2ff43n9r

19 https://doi.org/10.6078/M70K26PF
20 https://n2t.net/ark:/28722/k2902jd1n
21 https://n2t.net/ark:/28722/k22f84p5s
22 Northing value (https://n2t.net/ark:/28722/k2jh4007n), Easting value (https://n2t.net/ark:/28722/k2p84pt3k) and elevation (https://n2t.net/ark:/28722/k2t15dm86).
23 Field teams originally estimated the longest dimension by using a scale ruler over a printout on topographic maps and aerial photographs. Minimum bounded geometry provides a more precise estimate of dimensions.
24 https://pro.arcgis.com/en/pro-app/tool-reference/data-management/minimum-bounding-geometry.htm; MBG length (https://n2t.net/ark:/28722/k2668vg82) and MBG width (https://n2t.net/ark:/28722/k29z9k90j).
25 Environmental Data Table (https://doi.org/10.6078/M72F7KJB), Discovery Unit form (https://n2t.net/ark:/28722/k2mp5fz79).
26 Geomorphology Data Table (https://doi.org/10.6078/M7JH3JBR)
27 Environmental Data Table (https://doi.org/10.6078/M72F7KJB), Procedure-Counts Data Table (https://doi.org/10.6078/M7P8492G).
28 Procedure-Counts Data Table (https://doi.org/10.6078/M7P8492G), Discovery Unit form (https://n2t.net/ark:/28722/k2mp5fz79).
29 The putative total density per hectare was calculated by dividing the total count of artifacts by the area of the unit, calibrating for the sample, and multiplying by 10,000 to create a whole number. While fieldwalkers always examined a 2-meter-wide swath, counting and identifying objects 1 meter to their left, 1 meter to their right, they did not always walk 10 meters apart. The occasional spacing of walkers at narrower or wider intervals necessarily demands a different calibration because (for example) surveyors 5 meters apart would produce twice the number of transects and potentially twice the number of objects as surveyors 10 meters apart, were they to walk the same field. Calibrating for the sample meant in most cases multiplying the density by 5 since walkers spaced at 10-meter intervals sampled 1/5 (20%) of the unit; different calibration factors were used for other interval between walkers. The final step in calculating putative density involved multiplying by 10,000 in order to produce a whole number value; this is necessary because density per square meter almost always comprises a fraction of a point. Converting artifacts per m^2 to artifacts per hectare generates a whole number. What this figure represents is the putative number of objects field teams might expect to count if the density were projected across 1 entire hectare of space which was surveyed at 100% coverage. Surface visibility and its effects on density will be considered in Ch 9.
30 Features Data Table (https://doi.org/10.6078/M7XP732F), Discovery Unit form (https://n2t.net/ark:/28722/k2mp5fz79), 1999 survey form (https://n2t.net/ark:/28722/k2z03j655).
31 Adding these fields facilitates analysis: it is easier to query presence or absence of a particular feature than conduct a wildcard search for a feature that might be named or described in several different ways in a comments box.

32 I first experimented with survey zones as part of a diachronic study of the Isthmus: Pettegrew 2016, 22–25. My use of zones in this book improves on those efforts through more systematic rigor.
33 Standard survey zones (https://n2t.net/ark:/28722/k2pv6tk84), Zones Data Table (https://doi.org/10.6078/M71G0JDH).
34 https://www.geonames.org/12514074/trans-isthmus-wall.html
35 Mount Oneion (https://pleiades.stoa.org/places/570532), Z1 (https://n2t.net/ark:/28722/k2708h020), Z2 (https://n2t.net/ark:/28722/k2qz2nt5k), Z3 (https://n2t.net/ark:/28722/k2hd8840j).
36 Rachi Boska (https://www.geonames.org/12514080/rachi-boska.html), Z8 (https://n2t.net/ark:/28722/k29318549), Z9 (https://n2t.net/ark:/28722/k22j6vf63), Z10 (https://n2t.net/ark:/28722/k2v12fw9v), Z11 (https://n2t.net/ark:/28722/k2mg8262j), Z12 (https://n2t.net/ark:/28722/k2bk1t097).
37 Perdikaria (https://www.geonames.org/12514081/perdikaria.html), Examilia Village (https://www.geonames.org/262558/examilia.html) Z13 (https://n2t.net/ark:/28722/k2d22bv61), Z14 (https://n2t.net/ark:/28722/k25h7z487), Z15 (https://n2t.net/ark:/28722/k23j3wb6b), Z16 (https://n2t.net/ark:/28722/k2w09gs7k).
38 Kromna (https://www.geonames.org/12514059/kromna.html), Z18 (https://n2t.net/ark:/28722/k2dz0pc44), Z20 (https://n2t.net/ark:/28722/k2sx6qm41), Z21 (https://n2t.net/ark:/28722/k26405g63), Z22 (https://n2t.net/ark:/28722/k2zp4gb00).
39 Kesimia (https://www.geonames.org/12514083/kesimia.html), Z17 (https://n2t.net/ark:/28722/k2ng53319), Z19 (https://n2t.net/ark:/28722/k21g1455f).
40 Boulberi (https://www.geonames.org/12514058/boulberi.html), Z23 (https://n2t.net/ark:/28722/k2r502m21), Z24 (https://n2t.net/ark:/28722/k2hm5nw3b), Examilia Quarries (https://www.geonames.org/12514055/examilia-quarries.html), and trans-Isthmus fortification wall (https://www.geonames.org/12514074/trans-isthmus-wall.html).
41 Yiriza (https://www.geonames.org/12514036/yiriza.html), Z25 (https://n2t.net/ark:/28722/k2417d92t), Z26 (https://n2t.net/ark:/28722/k2wh30r4s), Gonia (https://www.geonames.org/12514037/gonia.html), Z27 (https://n2t.net/ark:/28722/k26d68n54), Kato Examilia (https://www.geonames.org/9408783/kato-examilia.html); areas along the road between Corinth (https://pleiades.stoa.org/places/570182) and Isthmia (https://pleiades.stoa.org/places/570316), Ayios Kosmas (https://www.geonames.org/9408780/ayios-kosmas.html) Z28 (https://n2t.net/ark:/28722/k2rf65s12), Z29 (https://n2t.net/ark:/28722/k28d0bf3n), West Foundation (https://www.geonames.org/12514056/west-foundation.html), Z30 (https://n2t.net/ark:/28722/k23b6gk34), Z31 (https://n2t.net/ark:/28722/k2vx0sd6g).
42 Isthmia (https://pleiades.stoa.org/places/570316), Z32 (https://n2t.net/ark:/28722/k24b3hg2w), Z33 (https://n2t.net/ark:/28722/k2z03jk8j), Z34 (https://n2t.net/ark:/28722/k2mc9bs6r), Z37 (https://n2t.net/ark:/28722/

k25b0jc1n) as well as the ridge of Rachi Marias (https://www.geonames.org/12514079/rachi-marias.html) Z35 (https://n2t.net/ark:/28722/k2cv4z28h), Z36 (https://n2t.net/ark:/28722/k2s473h4p).

43 Ayia Paraskevi (https://www.geonames.org/9408784/ayia-paraskevi.html), Z38 (https://n2t.net/ark:/28722/k2xs64t32).

44 Kenchreai (https://pleiades.stoa.org/places/570347), Z39 (https://n2t.net/ark:/28722/k2dj5vt1b), Z40 (https://n2t.net/ark:/28722/k2p279f0q), Z41 (https://n2t.net/ark:/28722/k2fj2wq22), Z42 (https://n2t.net/ark:/28722/k2b28926z), Z43 (https://n2t.net/ark:/28722/k2ws93x3t), Z44 (https://n2t.net/ark:/28722/k2pc3dk9p).

45 Vigla (https://www.geonames.org/12514008/vigla.html), Z45 (https://n2t.net/ark:/28722/k2697k80v), Vayia (https://www.geonames.org/9409078/vayia.html), Z46 (https://n2t.net/ark:/28722/k2ft90w1g), Z47 (https://n2t.net/ark:/28722/k2zs35q1b).

46 Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html), Z48 (https://n2t.net/ark:/28722/k2794m51k), Z49 (https://n2t.net/ark:/28722/k2fx7q81c), Z50 (https://n2t.net/ark:/28722/k2000kb04).

47 Z51 (https://n2t.net/ark:/28722/k2gx4r504), Z52 (https://n2t.net/ark:/28722/k20s06f39), Z53 (https://n2t.net/ark:/28722/k2s75sw3p), Z54 (https://n2t.net/ark:/28722/k2jq1d569), Z55 (https://n2t.net/ark:/28722/k2b570f98), Z56 (https://n2t.net/ark:/28722/k2kp8f241), Z57 (https://n2t.net/ark:/28722/k2v69vp5k), Z58 (https://n2t.net/ark:/28722/k23n2kr2q), Z59 (https://n2t.net/ark:/28722/k2mp5fz4v), Z60 (https://n2t.net/ark:/28722/k24m9mn0f).

48 https://doi.org/10.6078/M71G0JDH

49 I assigned average densities to each zone based on the weighted average of the densities of units within the zone—weighted to account for the relative sizes of the survey units. Zonal density data is based only on artifacts counted and/or collected through standard survey methods (i.e., systematic survey, chronotype sampling). Non-systematic grab samples and non-standard units (e.g., experimental units, LOCAs) were not factored into zonal density because they would distort the sample.

50 https://opencontext.org/search/?proj=164-the-eastern-korinthia-archaeological-survey&q=LOCA

51 https://n2t.net/ark:/28722/k2sn0hh26

52 https://n2t.net/ark:/28722/k22f84p5s

53 https://n2t.net/ark:/28722/k2cr67b84

54 https://n2t.net/ark:/28722/k2xp7f19q

55 Northing (https://n2t.net/ark:/28722/k2jh4007n) and Easting (https://n2t.net/ark:/28722/k2p84pt3k).

56 https://n2t.net/ark:/28722/k2902jd1n

57 https://n2t.net/ark:/28722/k2t15dm86

58 https://n2t.net/ark:/28722/k2xd1795v

59 https://doi.org/10.6078/M79021W0

60 LOCA shapefile (https://n2t.net/ark:/28722/k2sn0hh26), Finds Data Table (https://doi.org/10.6078/M7DR2SM1), LOCAs-Grids Data Table (https://doi.org/10.6078/M79021W0).

61 https://doi.org/10.6078/M7JH3JBR

62 Discovery Units (https://doi.org/10.6078/M7JH3JBR), Geomorphic Units (https://n2t.net/ark:/28722/k2nz8h317).

63 https://n2t.net/ark:/28722/k2ff43n9r

64 Geomorphology Data Table (https://doi.org/10.6078/M7JH3JBR), Environmental Data Table (https://doi.org/10.6078/M72F7KJB), and Geomorphic Units GIS (https://n2t.net/ark:/28722/k2nz8h317).

65 https://doi.org/10.6078/M7DR2SM1

66 Sub-unit numbers refer to internal divisions within units, such as grid squares at LOCAs, or separate survey passes in experimental units. Most units do not have sub-unit numbers and therefore have a 000 value for this part of the Object-ID.

67 Discovery Units GIS (https://n2t.net/ark:/28722/k2df72g4h), Extensive Units GIS (https://n2t.net/ark:/28722/k2j67s87s), Localized Cultural Anomalies (LOCA) GIS (https://n2t.net/ark:/28722/k2sn0hh26), and Localized Cultural Anomalies (LOCA) Grid Unit GIS (https://n2t.net/ark:/28722/k2xd1795v), Zone GIS (https://n2t.net/ark:/28722/k2pv6tk84),

68 https://doi.org/10.6078/M7DR2SM1

69 https://n2t.net/ark:/28722/k2ht3292h

70 https://n2t.net/ark:/28722/k2ff43n9r

71 https://n2t.net/ark:/28722/k2df72g4h

72 https://n2t.net/ark:/28722/k2j67s87s

73 Geomorphic Units GIS (https://n2t.net/ark:/28722/k2nz8h317), Geomorphology Data Table (https://doi.org/10.6078/M7JH3JBR).

74 Localized Cultural Anomalies (LOCA) (https://n2t.net/ark:/28722/k2sn0hh26), Kromna (https://www.geonames.org/12514059/kromna.html), Vayia (https://www.geonames.org/9409078/vayia.html), and Vigla (https://www.geonames.org/12514008/vigla.html), LOCAs Data Table (https://doi.org/10.6078/M7571947).

75 Localized Cultural Anomalies (LOCA) Grid Unit GIS (https://n2t.net/ark:/28722/k2xd1795v), LOCAs-Grids Data Table (https://doi.org/10.6078/M79021W0).

76 Zone GIS (https://n2t.net/ark:/28722/k2pv6tk84), Finds Data Table (https://doi.org/10.6078/M7DR2SM1).

77 Location Data Table (https://doi.org/10.6078/M70K26PF), Discovery Units GIS (https://n2t.net/ark:/28722/k2df72g4h) and Extensive Units GIS (https://n2t.net/ark:/28722/k2j67s87s).

78 https://doi.org/10.6078/M7DR2SM1

79 https://n2t.net/ark:/28722/k2ff43n9r

80 https://n2t.net/ark:/28722/k2c541c2k

Chapter 8
Linked Open Data

As an established site for publishing archaeological research data online, Open Context offers a variety of curated collections of linked, structured project data useful for searching, browsing, exploring, downloading, and analysis. The platform presents a network of pathways to integrate and visualize data sources that are archived and preserved through stable identifiers (Open Context URLs, ARKs, and DOIs) in the California Digital Library. Since Open Context is designed for deep data dives, however, some users may find that navigating the website to locate resources of interest is not always straightforward. The documentation of end-user access to open data is another essential part of the process of preparing data for reuse and publication.

This chapter is designed to promote the reuse of the open data of the Eastern Korinthia Archaeological Survey by laying out various pathways which analysts might follow to engage with online information related to the project on their own. I have structured the overview according to how I imagine different reader groups exploring the site. I begin with a brief description of how Open Context works (8.1), the EKAS project landing page (8.2), and navigating the site's interface (8.3). I then guide the reader through the steps of browsing and exploration of data (8.4), searching for specific kinds of information in EKAS (8.5), downloading tables, shapefiles, and media (8.6), and joining data tables and shapefiles for basic analysis (8.7). Collectively this discussion works toward understanding and reuse of open data and lays the groundwork for Chapters 9, 10, 11, and 12, which offer first-order analyses and links to the project's records published at Open Context.

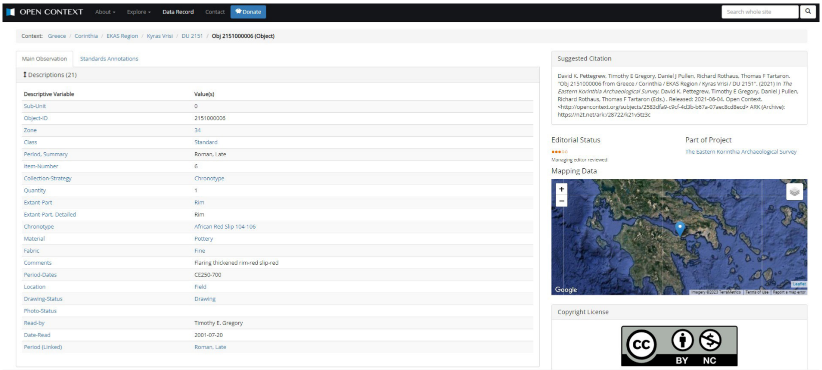


Figure 8.1. An example of a unique entity in Open Context: Object 2151000006, artifact number 6 from another unique entity, DU 2151. This object is a Late Roman African Red Slip 104–106 rim. Note the use of persistent identifier, the ARK, in the upper right. Follow the link to a network of information.

8.1. Open Data: How Open Context Works

Open Context is a platform and service for publishing and discovering interlinked, searchable, reusable archaeological research data. While Open Context works with partnering organizations to archive and preserve datasets, it does not primarily function as a data repository. Open Context, rather, is a publisher of research data that collaborates with archaeologists in curating, sharing, and improving the quality of information for broader intellectual purposes— "because data are for discovery and inspiration, not just management."[1] As such, Open Context can be used for a variety of purposes that include locating comparative objects and images, downloading data tables, searching field notes and documents, establishing stable links for objects and contexts, promoting controlled vocabulary, and visualizing data, among others.[2] At the time of writing,[3] the site has published 138 archaeological datasets, but many more are in the queue.[4] Someone who wants to know more in general about Open Context should consult the site's bibliography page that lists a range of scholarship since its inception nearly two decades years ago, and watch this 1-minute video that provides a general overview of the publisher's concept, purpose, and aim.[5]

Open Context is a publisher of dynamic research data, not a digital archive.[6] As a publisher, the site's editors-in-chief aim to help archaeologists improve the quality and reuse of their data through a protracted process of data development and refinement, documentation, peer review, editing, annotation (through project-defined and controlled vocabulary), and periodic versioning. Open Context partners with other organizations (the California Digital Library and the Internet Archive) to store static versions of archaeological data off-site, but the datasets available through Open Context are themselves updated constantly as shared vocabulary, identifications, and analysis change. The editors-in-chief have described their model of data dissemination as a mix of "publishing" in the traditional sense—involving, as it does, editorial curation, documentation, and revision toward a final product—and "pushing," a process of improving the data code through public user experience, feedback, and version control.[7] The site's datasets, in this sense, are dynamic and never truly "final," but are updated as public users identify mistakes, errors, and changed typologies, and as project editors find additional materials for publishing.

Open Context also differs from online archives in the way that it indexes and cites information. When compared to digital repositories, such as tDAR, the material accessible through Open Context is far more granular. Every single record (Figure 8.1)—from a single pottery sherd to a drawing, field report, or individual Discovery Unit—receives a unique name, the Uniform Resource Identifier (URI), and a unique library identifier, the Archival Resource Key (ARK) and the Digital Object Identifier (DOI). That means that any single record can be discovered and cited in consistent ways (Section 1.5). These identifiers also create the stable links for individual entities that persist regardless of future changes in the interface of Open Context, new pathways of URLs, or the reinterpretation of archaeological records. I have worked with the site's editors to create persistent identifiers for the kinds of queries of data that I use in this book (e.g., all examples of Late Roman cooking ware rims collected through standard survey methods and chronotype collection), but other kinds of links, screenshots, and instructions for navigation may fail as the site is continually updated.

Finally, it's worth noting that Open Context encourages use of both common shared standards of annotation (such as Dublin Core, GeoNames, and PeriodO) and customized project-level classification.[8] Some data fields may connect an individual record to defined, reusable vocabularies and recording systems, such as, for example, a specific object related to ceramic types defined by the Levantine Ceramics Project. Other data fields adopt ontologies specific to the project. All artifacts in EKAS are identified according to a vocabulary of known chronotypes—although the use of the chronotype system in multiple published archaeological datasets at Open Context makes comparison of chronotypes from multiple assemblages possible. See Appendix II for a full list of data fields.

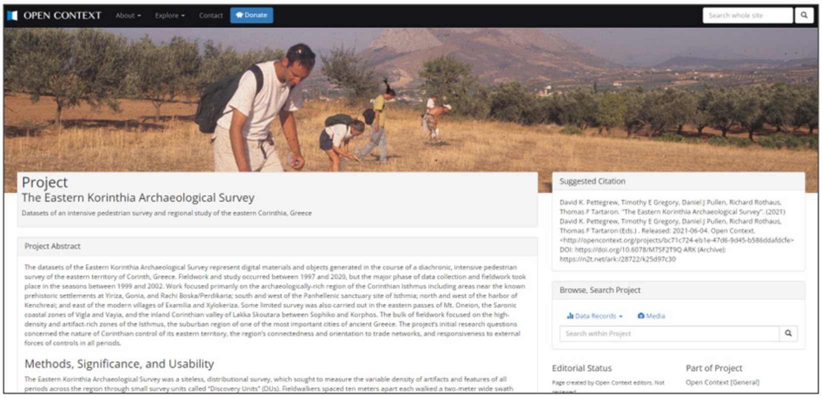


Figure 8.2. The EKAS Project Landing Page at Open Context provides a project overview and allows ease of browsing and searching.

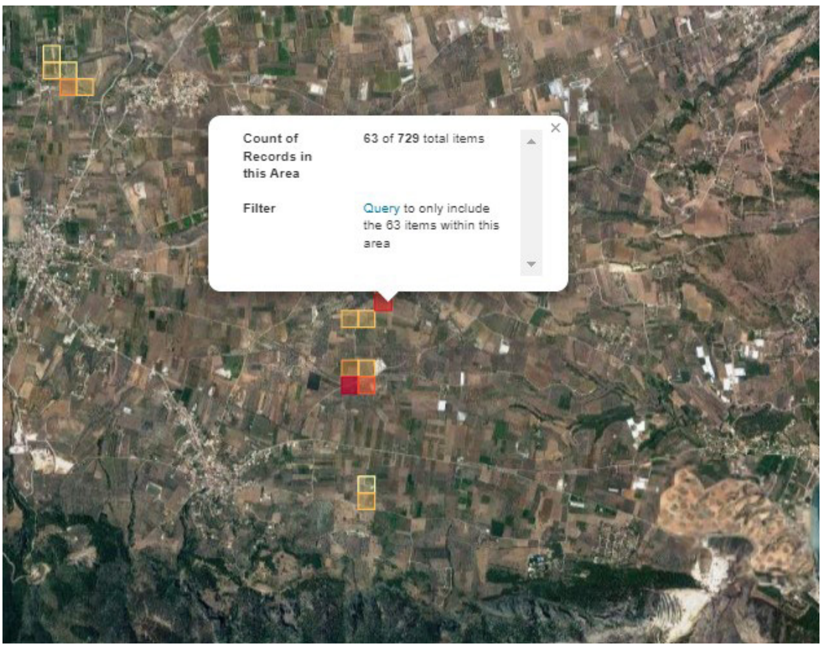


Figure 8.3. This visualization shows Open Context's aggregate of Grid Square units surveyed in the course of investigating LOCAs; the darker color represents the quantity of Grid Squares. Click on any of the boxes to filter and examine the location of individual Grid Squares (Cf. Figure 8.4).

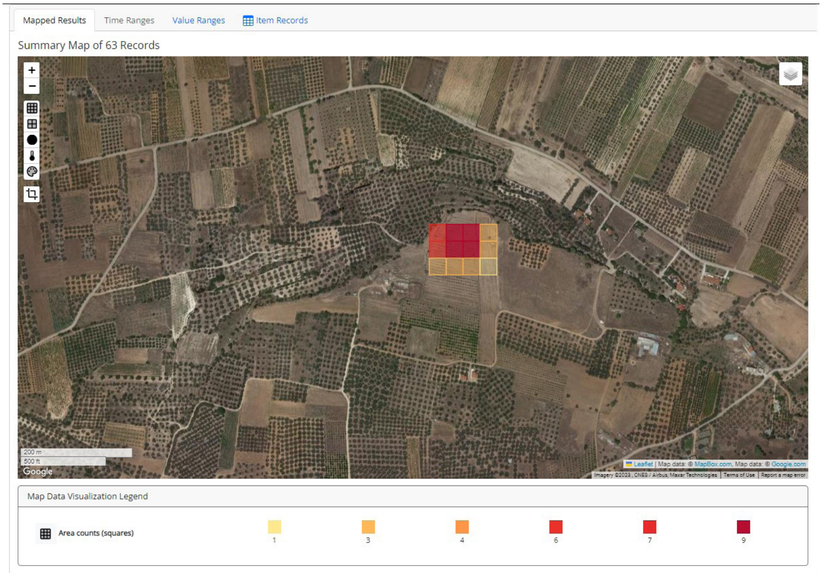


Figure 8.4. A visualization of Mapped Results after clicking on one of the Grid Square units in Figure 8.3 above. This filtered view shows the project-defined Grid Squares that comprise LOCA 9001.

Context: Europe / Greece / Corinthia / EKAS Region / Kato Vayia / **Zone 46 (Region)**

Main Observation | Standards Annotations | Metadata

Descriptive Attribute	Value(s)
Zone	46
Name	Kato Vayia
Toponymn (Linked)	Kato Vayia
Elevation-Min	80.0
Toponym	Kato Vayia
Elevation-Max	88.0
Visibility-Average	55.4
Visibility-Weighted	51.0804959654
Density-Weighted	1992.3488814538
Density-Visibility-Corrected	3900.4102129408
Morphostratigraphy	Colluvium with anthopogenic
Area	15243.0

Figure 8.5. Information related to Zone 46 as shown in Open Context, one of the "regions" of the survey.

8.2. The EKAS Project Landing Page

The project landing page is our "home base" for data browsing and exploration.[9] Because the page provides an intuitive portal to wade into data, I advise bookmarking it so that you have something to return to when following links draws you into the jungle.

The EKAS Project landing page serves three important purposes. First, it provides a new project website for all matters related to the Eastern Korinthia Archaeological Survey. The landing page currently includes information about the project history, methods, datasets, and bibliography. We will use this page to update publications as they continue to come out, identify mistakes or errors in data, and describe data versioning. The project's landing page will, for all practical purposes, be the primary way to update users about further interpretations and analysis of archaeological datasets.

Second, the project landing page provides an intuitive approach to browsing records. Clicking on the "Subjects of Observation" menu under the "Explore Project Data" header on the right side of the page, for example, offers convenient points of access to the project's records. Clicking on Subjects of Observations (All) is the entry point to browsing *all* entities.[10] The Object link queries all records of artifacts read in the project.[11] Clicking on Square queries all the LOCA grid square units investigated through gridded survey as an aggregate (Figures 8.3 and 8.4).[12] Clicking on Region showcases data associated with 90 toponyms and the 60 defined survey zones (Figure 8.5).

Another menu option under the "Explore Project Data" header allows you to pull data according to specified media classes. Clicking on "Image media" filters datasets to images of all photographs and scanned drawings captured by the project.[13] Clicking on "Document media" pulls up PDF documents produced during survey, including reports, manuals, and forms.[14] Clicking on "Vector geospatial (GIS) media" queries 6 GIS files.[15] Clicking on "Media (All)" results in a list of the categories of media noted above.[16]

A third reason to launch an exploration of EKAS data from the project home page is that it provides a convenient way to run open queries and keyword searches (Sections 8.3 and 8.5). Let's look more closely now at how navigation works in Open Context.

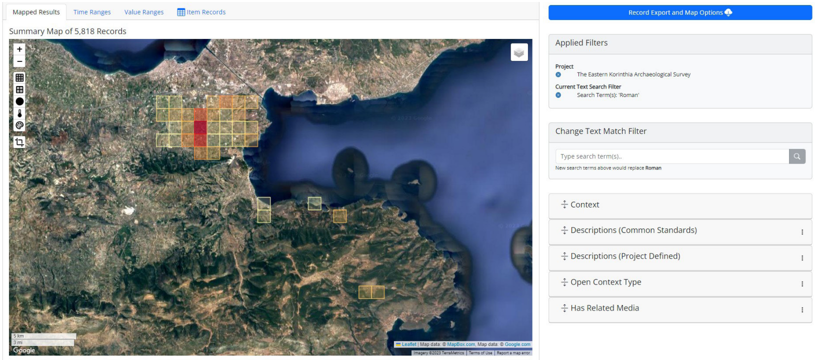


Figure 8.6. Spatial visualization of 5,818 objects associated with the keyword "Roman." This view of Open Context shows the "Mapped Results" tab.

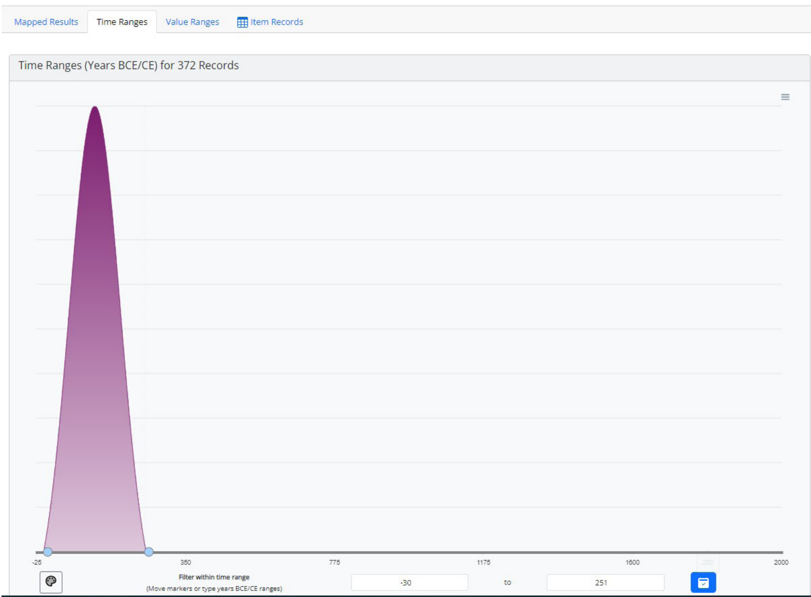


Figure 8.7. Time Ranges visualization of 372 objects associated with the keyword "Roman," but with earliest and latest event dates set to -31 and 250, respectively.

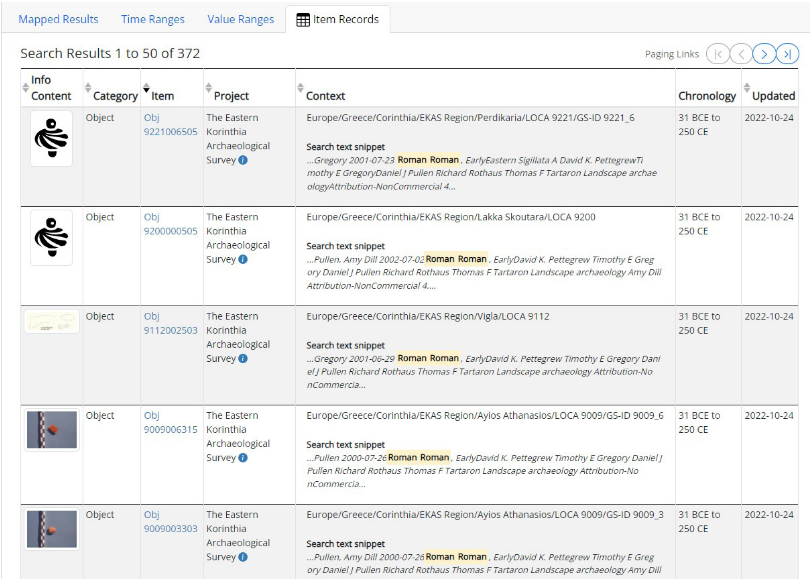


Figure 8.8. Item Records showing first page of items (records, illustrations, photos) associated with keyword "Roman" but limited by time frame between 31 BCE and 250 CE.

8.3. Navigating Browser and Search Interface

Whether you begin with browsing or searching, you will want to know how to navigate the interface beyond the project landing page. The current version of Open Context gives the user the power to browse, search, and filter information by employing a consistent navigation experience. That includes a structured visualization of the data and metadata (through tab menus at the top of the page) and an option to filter data according to the criteria of the project (through the pane on the right side of page).

8.3.1. Visualizing Results

Let's start with the four tabs, which present results of a query as four different visualizations (Figure 8.6, 8.7, 8.8).

> **Mapped Results (Tab 1):** The *Mapped Results* tab displays the spatial distribution of records (Figure 8.6). The map aggregates data for individual areas of the survey region according to squares that represent "summary regions" created through Open Context. Importantly, these squares do not correspond to the exact shape of survey units defined by the project (e.g., the transects of Discovery Units), or the zones that I have employed

for analysis, but, rather, display project data according to regular grid squares. One can view Open Context's "summary regions" in low resolution or high resolution by clicking on the square and grid icons located on the left side of the map.

Time Ranges (Tab 2)*:* The *Time Ranges* tab displays the chronological distribution of records (Figure 8.7). The sliding scale at the bottom allows the user to adjust the beginning and ending points of the graphic. This is an especially valuable tool for pulling records of a certain time range. It may be used, for example, to pull all data of the Late Bronze Age when that data has been defined according to a range of overlapping chronotype periods. Filtering the time range between -1700 and -1050 pulls up all records associated with *Late Bronze Age*, *Late Helladic I–IIA*, *Late Helladic III*, *Late Helladic IIIA*, *Late Helladic IIIA–B*, *Late Helladic IIIB*, and *Late Helladic IIIC–S*.[17] One should note that any adjustment to range will filter the number of output records.

Value Ranges (Tab 3): This tab shows certain project specific parameters, which, at the time of writing (2023), would not be useful for most users.

Item Records (Tab 4): The final tab, *Item Records*, displays the core element of Open Context: the individual records associated with browsing or searching criteria (Figure 8.8).

8.3.2. Filtering Results

If the tabs at the top of the page provide means of showing the data graphically, the pane on the right side of the screen can be used to query and limit results according to the data fields used by Open Context and/or defined by project. Clicking on the Context header allows you to filter to a specific unit of discovery by following a hierarchical order of links: continent (Europe), country (Greece), region (Corinthia), project area (EKAS Region), toponym (e.g., Perdikaria), and Discovery Units. The linked fields listed under the Descriptions (Project Defined) header allow the visitor to filter according to fields such as fabric, class of unit, collection strategy, and chronotype. Clicking on any of those headings produces the range of values that one can use to drill down to items of interest. The tabs at the top show the spatial distribution of those items and the individual item records for browsing or exporting as a CSV file. Other headers in the right pane apply different filters such as one that limits the output of items to those with linked images/media.

Whenever you filter, browse, or search results, begin by selecting "The Eastern Korinthia Archaeological Survey" as the relevant value for the "Project" header in the right pane. Filtering according to that project name will populate the right pane with project-related filters under the header titled "Descriptions (Project Defined)."

Let's look at a specific example to see how we can visualize and filter results. You may follow by using the screenshots below or by clicking on the linked queries.

8.3.3. Searching, Visualizing, and Filtering: An Example

The images below show the results of a search of the EKAS datasets by the keyword "Roman."[18] That search returned 5,819 items pulled through keyword or chronological overlap to the Roman period. Some of those items are artifact records, others are feature records, and still others represent photographs and illustrations associated with those records. All identified records with keyword "Roman" in the databases of the project appear with this search. You'll see from the spatial visualization of this search (Figure 8.6) that the densest number of Roman entities or records in the survey occurred on the Isthmus, just north of Mount Oneion. This visualization largely shows where we conducted most of the distributional survey and mainly gives us a density of our records of all things Roman.

The second tab, *Time Ranges*, shows the chronological span of those records that have been pulled up by a keyword search (Figure 8.7). You can tinker with the time ranges to filter results. For instance, try changing the earliest event date to -31 BCE and latest event date to 250 CE to grab only records of the "*Early Roman*" period. Doing this reduces the number of entities from 5,818 to 372.

Clicking on the *Item Records* tab shows all 372 items associated with this narrower range (Figure 8.8). In most cases, these are records or media associated with objects that were identified as "*Early Roman*" in the course of survey. Clicking on any of the individual records will provide points of access to learn more about the item and the contexts of its discovery. It's important to recognize that querying the collection in this way generates redundancy: Object 2160000502,[19] for example, is included three times in the item count as 1) a record of the object, 2) a photograph of the object, and 3) an illustration. The number of "items" associated with any search in Open Context does not represent a true count of artifacts, but a count of our records of the search, browsing, or filtering terms.

Let's assume you want to filter your search further. You could add a text filter through the search bar, filter by location through the *Mapped Results* tab, or apply one of the filters from the search pane to the right. Project-defined description filters in the right pane would allow you to filter your results by specific data field classes of the Finds data such as fabric or material (Appendix II.5). You could also filter by Context—drilling down to a specific toponym—or by Related Media, to pull up only items that have associated documents, images, or GIS shapefiles. As noted above, project-defined filters only become visible in Open Context after selecting "The Eastern Korinthia Archaeological Survey" under the Project header.

Try the following pathway to identify a specific Discovery Unit with "*Early Roman*" material. Begin by clicking on the Context header and following the links to "continent (Europe)" and "country (Greece)." Then continue to move through the series of links:

- Click on region (Corinthia). This will not affect the number of records.[20]

- Click on project area (EKAS Region). This will not affect the number of records.[21]

- You should now see a list of toponyms that contain *Early Roman* material. Select "Perdikaria" to filter to 74 records. Your results should look like this.[22]

- Now pick Discovery Unit 2174 to see the results of the query simply for that survey unit.[23]

You could also filter your query of "*Early Roman*" objects in another way by clicking on some of the fields listed under the Descriptions (Project Defined) such as fabric, class of unit, collection strategy, and chronotype.[24] The result of this filter shows the 39 "*Early Roman*" items with attributes of "fine" fabric, "standard" class, "Chronotype" collection strategy, and "Eastern Sigillata B2" chronotype.[25]

8.4. Browsing and Exploring Datasets

I have already noted several ways to browse and explore data from the project landing page (Section 8.2), but Open Context provides other pathways to browsing. I'll describe two convenient exploration techniques: interactive maps and defined queries.

8.4.1. Browsing through Interactive Maps

The easiest and most intuitive way to locate specific information associated with project-defined survey space is to explore the interactive maps of different classes of survey units at Open Context. The Vector Geospatial (GIS) Media page displays six files. Clicking on any of the files leads to a Geospatial Preview of the file that shows actual shape and location of survey units of the Eastern Korinthia Archaeological Survey (in contrast with the aggregative "Summary Regions" described in 8.3.1). The maps of each file are interactive: you can look at a specific unit, find the clickable link, and follow it to the data page associated with the survey unit. The downside of accessing data this way is that this pathway does not aggregate the entire set of data associated with a particular location but only data of the specified kind. The Discovery Units geospatial media page, for example, will only pull up data of Discovery Units; it does not pull in related datasets from Geomorphic Units, LOCAs, or Zones that may overlap with the DU.

Still, the process of accessing data in this way is intuitive and creates an easy way of data exploration. The following GIS layers may be explored in this way:

- Discovery Units.[26]
- Geomorphic Units.[27]
- Localized Cultural Anomalies.[28]
- Extensive Units.[29]
- Localized Cultural Anomalies Grid Units.[30]
- Zones.[31]

8.4.2. Browsing via Defined Queries

For the convenience of readers, I have generated several shortcuts to data aggregation that may be useful for research purposes. Data queries in Open Context are generally not stable since URLs may fail as the site is updated periodically. To work toward more persistent queries, the editors-in-chief at Open Context have created persistent identifiers that should provide more enduring links.[32]

- This list of project toponyms allows the visitor to browse the project-defined toponyms of the eastern Corinthia.[33] Clicking on an individual toponym provides a list of linked Discovery Units within the toponym and maps all associated records. The *Item Records* tab displays all related DUs, data tables, objects, and media associated with each toponym.

- Other shortcuts for aggregating data by location include the following:

    - Records associated with all LOCAs in the survey.[34]
    - Records associated with all Standard Discovery Units.[35]
    - Records associated with all Experimental Discovery Units.[36]
    - Records associated with all Extensive Discovery Units.[37]
    - Records associated with all Revisit-Grab Units.[38]
    - Records associated with all Counts Units.[39]
    - Records associated with all Grab Units.[40]
    - Records associated with all Features Units.[41]
    - Records associated with all Zones.[42]

Remember what I noted earlier (Section 8.3.1): the Squares displayed in Open Context's maps represent artificial units ("Summary Regions") designed to aggregate, and the queries pull total number of records of all types. To see the actual shape and location of Discovery Units, LOCAs, and Zones, move through the maps to the base layer, or visit the interactive maps described above.

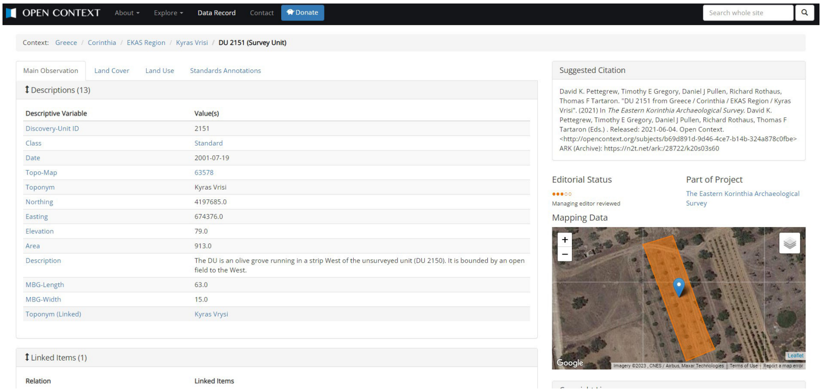


Figure 8.9. Example of survey unit data: DU 2151 near village of Kyras Vrysi. Click on links listed under Descriptive Variable heading to aggregate data for all units according to data field. Click on linked items listed under Value(s) heading to pull sample data associated with "standard" survey unit class or particular areas of the Corinthia (e.g., objects associated with the toponym of Kyras Vrysi or the topographic map 63578). Other linked items, persons, media, and objects are shown below the entry. Additional tabs at the top ("Land Cover," "Land Use," and "Features") display environmental data for Discovery Unit 2151.

8.5. Finding Information

Open Context provides different pathways of culling data according to specific attributes. I can imagine readers especially wanting to search data related to specific locations (Section 8.5.1), periods (Section 8.5.2), and chronotypes (8.5.3).

8.5.1. Finding Data from Specific Locations

Searching for content associated with a specific survey unit or toponym offers an encompassing way for pulling all data related to particular places. I include below some easy searches that can produce quick results related to specific locations. I recommend beginning a search from the EKAS landing page so that the search does not query all datasets for all projects at Open Context.[43]

- Search for a specific **Localized Cultural Anomaly** by typing the keyword "LOCA" into the search box. Doing so populates the search bar with the range of possible values for LOCA. Try this with LOCA 9003.[44] Follow the results in the *Item Records* tab to all items and objects associated with the LOCA, including the main observation table (e.g., LOCA 9003 Main Observation).[45] The aggregation includes related locations (e.g., DUs), objects (e.g., artifacts), and media below the data table.

- Search for a specific **Discovery Unit** by typing the prefix "DU" into the search bar. Try this with DU 1502.[46] Under *Item Records*, select the first item (Category: "Survey Unit") to pull up the main observation table for the survey unit (see, for example, DU 1502 Tables).[47] The tabs at the top include general description, land use, land cover, features, and artifact densities. Below the tables are a variety of related data.

- Search for other terms such as **common toponyms** or **Zones**. A user who wants to pull data associated with the known prehistoric site of Gonia could simply type the keyword "Gonia" into the search box.

8.5.2. Finding Data from Specific Periods

Other parts of this work (Section 1.3 and Section 11.1) describe some of the challenges of periodization in the EKAS project data. These challenges are important to consider when locating records related to specific periods.

First, periodization is fuzzy. Periods sometimes overlap in complicated ways, as in the case of *Classical–Roman*, *Roman*, and *Hellenistic–Early Roman*.[48] The same terminology, moreover, may apply to different ideas. A period name like Roman,[49] for example, may refer to either the broad chronotype period (*Roman*) adopted by the project, or the broad analytical period (Roman),[50] the umbrella term for all 4 chronotype periods that fall between 31 BC and 700 CE (*Roman*, *Early Roman*, *Middle Roman*, *Late Roman*).[51] In this book, I have kept these distinctions clear by use of italics to denote chronotype periods and regular font to refer to generic uses of the term or the analytical period. The data at Open Context does not adopt such distinctions and will result in fuzzy searches. Anyone interested in examining and visualizing data associated with periods should think about this when querying the EKAS data at Open Context. The basic rule is to know what you are querying.

A second issue to keep in mind as you explore Open Context chronological data is that the quantity of items associated with any specific period refers not to the absolute number of associated artifacts (cf. Section 8.3.3) but, rather, the number of batches of objects of a certain period. DU 636,[52] for example, produced 2 artifacts of the *Roman* chronotype period: both body sherds of Micaceous Water Jar. Because these objects represent the same chronotype, they were batched together during analysis. They are listed together under a single Object

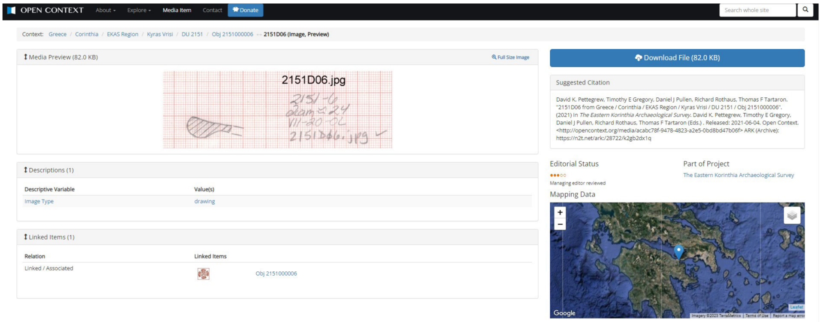


Figure 8.10. An example of linked media in Open Context: an original drawing 2151D06 of Object 2151000006 from DU 2151.

ID, 0636000005.[53] The total quantity of objects of a period is different than the total quantity of records of that period shown in Open Context.

A final issue to consider is that a keyword search for any period name may result in a different quantity (and aggregation) of data depending on how the item is searched. So, a generic search on the term "*Roman, Late*" or "*Late Roman*" in the EKAS Open Context datasets yields a result of 1,995 distinct records.[54] As the *Item Records* tab shows, the search has produced a more extensive set of records because the search engine has retrieved records by seeking text keywords in most parts of the online datasets, including references to the term in the LOCAs data tables, the project landing page, objects, and image media files.[55] But Open Context provides a second way of querying the data by using the project-defined categories to limit the query to fields specific to the *Finds Data Table*.[56] Filtering the data by the *Collection-Strategy* field (since all items in the finds table had a value for that field) and using the *Period (Linked)* field to search "*Late Roman*" yields a result of 1,609 distinct records.[57] In this case, the objects listed in the *Items Record* tab only list records of objects found in the *Finds Data Table*.[58] The lesson here is that a generic search via the search bar in Open Context will produce a more inclusive list of records than a controlled, filtered query designed to pull up data from the EKAS finds data table.

The following linked periods provide shortcuts to all *Finds* data associated with specific chronotype periods at Open Context. The linked terms below pull up a sample of objects of specific periods; click on the button / icon below the sample to query and visualize all records of the period. Note that queries exclude features and generic references to the period names (the visitor can use the general search box at the site to run a broader search that pulls in everything). I have arranged the lists of chronotype periods beneath the inclusive analytical periods according to chronological order. To aggregate all finds data associated with a broad analytical period, click on the boldfaced term below; otherwise, follow the linked italicized terms to data associated with specific chronotype periods.

Prehistoric (Analytical Period):[59] *Prehistoric,*[60] *Neolithic,*[61] *Early Neolithic,*[62] *Middle Neolithic,*[63] *Late Neolithic,*[64] *Final Neolithic,*[65] *Final Neolithic–Early Helladic I,*[66] *Bronze Age,*[67] *Early Bronze Age,*[68] *Early Helladic I,*[69] *Early Helladic I–II,*[70] *Early Helladic II,*[71] *Early Bronze Age–Middle Bronze Age,*[72] *Middle Bronze Age,*[73] *Middle Helladic–Late Helladic,*[74] *Middle Helladic–Late Helladic I,*[75] *Late Bronze Age,*[76] *Late Helladic I–IIA,*[77] *Late Helladic III,*[78] *Late Helladic IIIA,*[79] *Late Helladic IIIA–B,*[80] *Late Helladic IIIB,*[81] *Late Helladic IIIC–S.*[82]

Protogeometric–Hellenistic (Analytical Period):[83] *Protogeometric–Hellenistic,*[84] *Protogeometric–Archaic,*[85] *Protogeometric,*[86] *Geometric–Archaic,*[87] *Geometric,*[88] *Archaic–Hellenistic,*[89] *Archaic–Classical,*[90] *Archaic,*[91] *Classical–Hellenistic,*[92] *Classical,*[93] *Hellenistic.*[94]

Roman (Analytical Period):[95] *Roman,*[96] *Early Roman,*[97] *Middle Roman,*[98] *Late Roman.*[99]

Medieval (Analytical Period):[100] *Medieval,*[101] *Early Medieval,*[102] *Late Medieval,*[103] *Ottoman/Venetian.*[104]

Modern (Analytical Period):[105] *Modern,*[106] *Early Modern,*[107] *Modern Present.*[108]

Overlapping Periods: *Unknown,*[109] *Ceramic Age,*[110] *Post-Prehistoric,*[111] *Prehistoric–Classical,*[112] *Bronze Age–Roman,*[113] *Bronze Age–Modern,*[114] *Late Bronze Age–Classical,*[115] *Late Helladic–Modern Present,*[116] *Ancient,*[117] *Ancient Historic,*[118] *Ancient–Medieval,*[119] *Ancient Historic–Medieval,*[120] *Classical–Roman,*[121] *Hellenistic–Early Roman,*[122] *Hellenistic–Roman,*[123] *Hellenistic–Modern,*[124] *Roman–Early Medieval,*[125] *Roman–Medieval,*[126] *Roman–Modern,*[127] *Medieval–Modern.*[128]

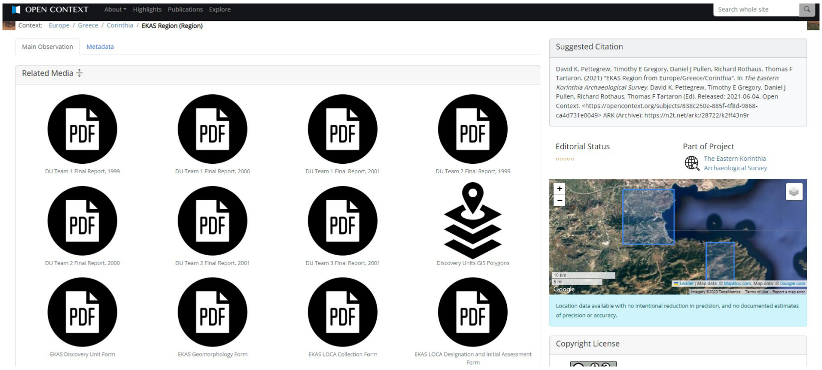


Figure 8.11. The Linked Media Staging Page at Open Context provides a list of downloadable reports and data tables.

8.5.3. Finding and Visualizing Records of Specific Chronotypes

EKAS recorded 621 different chronotypes in the process of carrying out survey and the complete list is available at Open Context.[129] Clicking on a specific chronotype name (Echinus Bowl,[130] for example) leads to item records and maps that aid in visualizing the data. Note that if you follow the hyperlink above, you will not see every single chronotype but only those chronotypes with the most values. Because chronotypes are defined hierarchically, you can drill down to narrower chronotype periods beneath the broader hierarchical category. See, for example, the category Utility Ware, Ancient,[131] which breaks into additional chronotype categories. Clicking on one of those categories, Utility Ware, Roman,[132] shows six kinds of Roman utility ware chronotypes at the base.

8.6. Downloading Data

The real potential of data analysis lies in experimenting with the data through database programs and GIS. Anyone who wants to carry out their own analysis may download data to their computers and import into databases on their end. Open Context provides the option of exporting records as CSV files or GeoJSON files while browsing and searching collections, but analysts should take care that the query pulls the desired data. I have noticed, for example, in exporting LOCA grid squares, that artifact count and density data do not export along with the other fields. The lesson here, again, is to know what you're downloading; be sure the downloaded data table provides what you seek.

The most reliable way of downloading data associated with any table or shapefile is to visit EKAS' primary datahub at the Related Media page and browse for original files.[133] That page contains about 60 files that include complete curated data tables (CSV), geospatial records (GIS), and original documents and reports of the project (PDF). Keep in mind that these are static files archived in 2021 and may not represent the most up-to-date version of the data. We will communicate updates to versions via the project landing page.

Photographs and illustrations may be downloaded individually. Open Context does not provide a pathway to downloading all media as a single batch. Users may locate and download individual files associated with particular contexts through browsing or searching by unit, period, or other criteria.

8.7. Joining Data Tables and Shape Files for Analysis

A user may download data tables for analysis in database programs like Microsoft Access and use standard GIS software to open geospatial shapefiles. Datasets can be joined together via common identifiers. The long URIs are the most reliable field for joining data tables because they are entirely unique even though they are significantly longer than other fields. But joins can also be made via other integer fields as spelled out in the description of field definitions in Appendix II. Tutorials for joining tables through commercial software programs like Microsoft Access and ArcGIS are readily available online.

01100010 01110010 01100101 01100001 01101011

The guidelines outlined above do not exhaust the modes of reuse and engagement with open data, but they do provide common pathways that users can follow to engage with the information online. Ultimately open data encourages and invites exploration, tinkering, and discovery. With that introduction to EKAS datasets, I want to shift gears in the next five chapters to show how querying, aggregating, and layering data can address critical source issues in the analysis and interpretation of distributions. In doing so, we will continue to reference the project's open datasets for browsing and exploring.

Endnotes

1 As the Open Context landing page currently notes. Accessed July 10, 2024.
2 https://opencontext.org/about/uses
3 Site accessed July 10, 2024.
4 https://opencontext.org/projects-index/
5 https://opencontext.org/about/bibliography; https://opencontext.org/about/
6 This short summary is based on Kansa and Kansa 2016; Garstki et al. 2020.
7 Kansa, Kansa, and Arbuckle 2014.
8 Dublin Core (https://www.dublincore.org/), GeoNames (https://www.geonames.org/), and PeriodO (https://perio.do/en/).
9 https://n2t.net/ark:/28722/k25d97c30
10 https://n2t.net/ark:/28722/k26q2d394
11 That also includes null values for survey units noted in the Finds Data Table where no artifacts were recorded; https://n2t.net/ark:/28722/k22z1p94h.
12 The results of that query actually pull grid squares in as an aggregate of all grid squares, but you can locate individual EKAS grid squares by clicking on these boxes. Here the Item Records tab displays not artifacts but information for each grid square unit (https://n2t.net/ark:/28722/k25q5c68d). Clicking on an individual record—for example, Grid Square 19 of LOCA 9003—shows information about location, method of collection (in this case, collecting chronotypes through a sample via hoovering), and quantity of sherds collected (n=5); the Contents area below the data show individual artifacts collected through the hoovering circle; Square (https://n2t.net/ark:/28722/k2z60zn8b).
13 https://n2t.net/ark:/28722/k2pr87f3m
14 https://n2t.net/ark:/28722/k2k07hn1r
15 https://n2t.net/ark:/28722/k2f76st8g
16 https://n2t.net/ark:/28722/k29g6313n
17 *Late Bronze Age* (https://n2t.net/ark:/28722/k2t444d1g), *Late Helladic I–IIA* (https://n2t.net/ark:/28722/k2k07hb64), *Late Helladic III* (https://n2t.net/ark:/28722/k29g62q93), *Late Helladic IIIA* (https://n2t.net/ark:/28722/k21z4n40r), *Late Helladic IIIA–B* (https://n2t.net/ark:/28722/k2ns1682v), *Late Helladic IIIB* (https://n2t.net/ark:/28722/k2j10gf9w), *Late Helladic IIIC–S* (https://n2t.net/ark:/28722/k24q8b135).
18 https://n2t.net/ark:/28722/k28g9243d
19 https://n2t.net/ark:/28722/k2c25785h
20 https://n2t.net/ark:/28722/k21z4nd67
21 https://n2t.net/ark:/28722/k2x92n51f
22 https://n2t.net/ark:/28722/k2sj1xb85
23 https://n2t.net/ark:/28722/k2ns16j8b
24 https://n2t.net/ark:/28722/k2j10gr4h
25 https://n2t.net/ark:/28722/k2d79rx9q
26 https://n2t.net/ark:/28722/k2df72g4h
27 https://n2t.net/ark:/28722/k2nz8h317
28 https://n2t.net/ark:/28722/k2sn0hh26

29 https://n2t.net/ark:/28722/k2j67s87s
30 https://n2t.net/ark:/28722/k2xd1795v
31 https://n2t.net/ark:/28722/k2pv6tk84
32 Even these, however, will need to be checked periodically to ensure links still work.
33 https://n2t.net/ark:/28722/k24q8b99n
34 https://n2t.net/ark:/28722/k2cg04t3q
35 https://n2t.net/ark:/28722/k27p9f11d
36 https://n2t.net/ark:/28722/k23x8q665
37 https://n2t.net/ark:/28722/k20580d0r
38 https://n2t.net/ark:/28722/k2vd78r5r
39 https://n2t.net/ark:/28722/k2qn6jz3k
40 https://n2t.net/ark:/28722/k2m04jj0h
41 https://n2t.net/ark:/28722/k2g73tq8q
42 https://n2t.net/ark:/28722/k2bg33x4z
43 https://n2t.net/ark:/28722/k25d97c30
44 https://n2t.net/ark:/28722/k21269w7n
45 https://n2t.net/ark:/28722/k24q87c0z
46 https://n2t.net/ark:/28722/k2w95m835
47 https://n2t.net/ark:/28722/k2jm2m494
48 *Classical–Roman* (https://n2t.net/ark:/28722/k2b85pv1b), *Roman* (https://n2t.net/ark:/28722/k23r1944z), and *Hellenistic–Early Roman* (https://n2t.net/ark:/28722/k26d68n6m).
49 https://n2t.net/ark:/28722/k2b85q477
50 *Roman* (https://n2t.net/ark:/28722/k23r1944z), Roman (https://n2t.net/ark:/28722/k2b85q477)
51 *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q)
52 https://n2t.net/ark:/28722/k2dj5s55x
53 https://n2t.net/ark:/28722/k2vm4kd9v
54 https://n2t.net/ark:/28722/k2rj4wg10
55 The query does not include everything, however. The project's PDF documents are not currently indexed or discoverable through these queries.
56 https://doi.org/10.6078/M7DR2SM1
57 https://n2t.net/ark:/28722/k2ms45n7m
58 https://doi.org/10.6078/M7DR2SM1
59 https://n2t.net/ark:/28722/k2qj7vk08
60 https://n2t.net/ark:/28722/k2x63xg6j
61 https://n2t.net/ark:/28722/k2w38662w
62 https://n2t.net/ark:/28722/k2gt61s26
63 https://n2t.net/ark:/28722/k2d22bv7h
64 https://n2t.net/ark:/28722/k2ms45c2m
65 https://n2t.net/ark:/28722/k27d39j7b

66 https://n2t.net/ark:/28722/k2zw1w36n
67 https://n2t.net/ark:/28722/k25q5bx30
68 https://n2t.net/ark:/28722/k22r4874q
69 https://n2t.net/ark:/28722/k2x357324
70 https://n2t.net/ark:/28722/k2nk3sg28
71 https://n2t.net/ark:/28722/k2891n248
72 https://n2t.net/ark:/28722/k2f19cr4r
73 https://n2t.net/ark:/28722/k21v5xq7d
74 https://n2t.net/ark:/28722/k2sb4h87w
75 https://n2t.net/ark:/28722/k2ht32n8w
76 https://n2t.net/ark:/28722/k2t444d1g
77 https://n2t.net/ark:/28722/k2k07hb64
78 https://n2t.net/ark:/28722/k29g62q93
79 https://n2t.net/ark:/28722/k21z4n40r
80 https://n2t.net/ark:/28722/k2ns1682v
81 https://n2t.net/ark:/28722/k2j10gf9w
82 https://n2t.net/ark:/28722/k24q8b135
83 https://n2t.net/ark:/28722/k2ks74r5d
84 https://n2t.net/ark:/28722/k2g73tf3q
85 https://n2t.net/ark:/28722/k23n2kr36
86 https://n2t.net/ark:/28722/k2c541b81
87 https://n2t.net/ark:/28722/k2fx7q82v
88 https://n2t.net/ark:/28722/k2qc0fg8f
89 https://n2t.net/ark:/28722/k2pn9hr96
90 https://n2t.net/ark:/28722/k26q2ct56
91 https://n2t.net/ark:/28722/k2058036m
92 https://n2t.net/ark:/28722/k2v98k29s
93 https://n2t.net/ark:/28722/k2h13fj66
94 https://n2t.net/ark:/28722/k2b570g0c
95 https://n2t.net/ark:/28722/k2b85q477
96 https://n2t.net/ark:/28722/k23r1944z
97 https://n2t.net/ark:/28722/k2v415907
98 https://n2t.net/ark:/28722/k2kk9qp6q
99 https://n2t.net/ark:/28722/k27h20x6q
100 https://n2t.net/ark:/28722/k26m3pq5x
101 https://n2t.net/ark:/28722/k2qj7v85n
102 https://n2t.net/ark:/28722/k2g16dn5g
103 https://n2t.net/ark:/28722/k26h5018v
104 https://n2t.net/ark:/28722/k2tb1j606
105 https://n2t.net/ark:/28722/k2g16dz03
106 https://n2t.net/ark:/28722/k2rb7gc7n
107 https://n2t.net/ark:/28722/k20v8wt75
108 https://n2t.net/ark:/28722/k24m9mn1x
109 https://n2t.net/ark:/28722/k2jt03j7n

110 https://n2t.net/ark:/28722/k2d79rn4q
111 https://n2t.net/ark:/28722/k2000kb1m
112 https://n2t.net/ark:/28722/k2mk6rk40
113 https://n2t.net/ark:/28722/k28g91t8c
114 https://n2t.net/ark:/28722/k2rj4w55w
115 https://n2t.net/ark:/28722/k2z60zc3b
116 https://n2t.net/ark:/28722/k2w66wk69
117 https://n2t.net/ark:/28722/k2sf36p38
118 https://n2t.net/ark:/28722/k20z7m70h
119 https://n2t.net/ark:/28722/k27p9dq6c
120 https://n2t.net/ark:/28722/k2c82qr1k
121 https://n2t.net/ark:/28722/k2b85pv1b
122 https://n2t.net/ark:/28722/k26d68n6m
123 https://n2t.net/ark:/28722/k2xw4v65x
124 https://n2t.net/ark:/28722/k22n5jv10
125 https://n2t.net/ark:/28722/k2ks74g0d
126 https://n2t.net/ark:/28722/k2z32804b
127 https://n2t.net/ark:/28722/k2988nz2k
128 https://n2t.net/ark:/28722/k2pk0tc4g
129 https://n2t.net/ark:/28722/k2h13fv29
130 https://n2t.net/ark:/28722/k2c82r17g
131 https://n2t.net/ark:/28722/k27h21727
132 https://n2t.net/ark:/28722/k23v00t0x
133 https://n2t.net/ark:/28722/k2ff43n9r

Chapter 9
Artifact Counts

Over the last generation, critical survey literature has foregrounded the gaps separating archaeological reconstructions from the dynamic realities of past landscapes. Even as source criticism and the cultural turn drew attention to the limited perspectives and constructions of ancient historical texts, surveyors have explored a range of factors that create epistemic distance between samples of surface traces and the messy realities of past habitation.[1] Data-rich approaches to survey have not solved the fundamental problem of the representativeness of archaeological sample to original population, but they have helped archaeologists better understand the character, quality, and meaning of surface scatters. Counting objects and features, in particular, attempts to index the relative fluctuation of a landscape's atomic elements, the things smeared across surfaces in overlapping entanglements, which in turn illuminates the intensity of depositional processes in the archaeological record.

While our discussion to this point has surveyed the character of methods and the data produced and published, the remaining chapters concern how to think critically about data to form impressions of human activity at different scales. My discussion in Chapters 9–13 will not primarily concern higher-order interpretation of the kind that requires integration of multiple lines of evidence—reconstructing the distribution of "classical farmsteads," for example, or the pattern of Roman villas in the region, or Ottoman landholding—but first-order description and analysis of data that characterizes the overall patterning of artifact data. That first-order description forms a foundation for more complex forms of historical interpretation that draw meaning from the landscape (Ch. 14) by shedding light on the processes and gaps that separate an archaeological sample from an original lived reality.

This chapter and the next form a pair that reflect on the analysis of artifact density data generated by the Eastern Korinthia Survey. Discussion in this chapter examines the relationship between the archaeological sample—the counts of artifacts that individual surveyors made in thousands of swaths across the region (Section 5.2.1)—and the totality of objects actually present on the surface. Drawing on work carried out by EKAS's experimental team, and my own analysis of the EKAS Discovery Unit tables (cf. Section 7.2), I examine how specific human and geomorphic factors—fieldwalker effectiveness, variability in counting, surface visibility,[2] and background disturbance[3]—have affected estimations of artifact counts and created gaps between sample and actual population (Sections 9.1 and 9.2). In response, I argue that we need to think more critically about the processes that create artifact scatters (9.4) and propose appropriate strategies—calibration, stratification, and aggregation—for addressing the gaps created at the limits of our methods (9.3).

9.1. Becoming Wise about Fieldwalker (In)effectiveness

The accuracy of fieldwalkers, walker effects, and human error have been the subject of significant discussion in Mediterranean survey literature since landscape archaeologists began using object counts as an index for measuring past human activity.[4] Critical studies have pointed to the various human factors that shape how fieldwalkers notice objects when they move across a landscape—ranging from vision to experience, training, pace, and even tiredness. As a team leader for several years, I witnessed first-hand how certain team members took longer than others to walk their swaths, consistently counting more artifacts. One season, a little cadre of graduate students and I carried out our own informal database analysis of the number of lithic objects counted, observing that two individuals who had previously studied stone artifacts counted most of the stone objects during survey. Fieldwalker effectiveness in recognizing objects of different kinds obviously has implications for understanding past landscapes.[5]

EKAS generated several distinct datasets that speak to the question of fieldwalker effectiveness, the most complete being Robert Schon's experiments in 1999 that measured procedural effectiveness and fieldwalker accuracy.[6] Schon was especially interested in how field conditions, artifact size, and walker error shaped the documentation of surface scatters, but he also recorded a range of other information, such as duration of walking, time of day, and weather. To test these variables, his team seeded artifacts in 4 fields with different surface visibility and background noise.[7] Planting 1000+ potsherds and tile fragments

Walker	Field 1	Field 2	Field 3	Field 4	Average
1	53.8	38.0	85.3	73.4	62.6
2	39.7	30.4	81.5	73.9	56.4
3	35.3	30.4	85.3	71.7	55.7
4	34.2	37.0	81.0	70.1	55.6
5	46.7	17.9	85.3	70.1	55.0
6	33.7	27.2	86.4	71.2	54.6
7	32.1	45.7	73.9	60.9	53.1
8	33.7	32.1	75.0	61.4	50.5
9	33.7	39.1	68.5	56.4	49.4
10	41.3	13.6	77.7	60.9	48.4
11	38.0	12.5	74.5	62.5	46.9
Range	21.7	33.2	17.9	17.5	
Mean	38.4	29.4	79.5	66.6	
Median	35.3	30.4	81.0	70.1	

Table 9.1. Overall fieldwalker effectiveness expressed as an average percentage of correct identifications across three separate passes of the same transect in four fields (after Schon 2002, Table 5.3). Field 1 = Medium surface visibility (70%) and high background disturbance; Field 2 = Low surface visibility (10–20%) and low background disturbance; Field 3 = High surface visibility (90–100%) and low background disturbance; Field 4 = Medium surface visibility (70%) and low background disturbance.

along three 50-meter long transects in each field,[8] they rotated 11 fieldwalkers through an experiment to measure individual effectiveness in flagging objects in their swaths. The datasets, presented in Schon's doctoral dissertation, offer important insight into the question of walker effectiveness.[9]

The results of the experiment, summarized in Table 9.1, show the surprising ineffectiveness of surveyors in accurately identifying artifacts in divergent field conditions. Even when visibility was excellent (in Field 3, for example),[10] the most accurate fieldwalker only identified, on average, 86% of the objects in her swath, while the typical fieldwalker averaged only about 80% accuracy (i.e., correctly identifying only 4 out of every 5 seeded sherds). In fields with lower visibility (Field 2) or greater background noise (Field 1),[11] average accuracy in recognizing artifacts plummeted below 40%. The experiments showed that a typical fieldwalker might miss 1 in 5 sherds under ideal field conditions and 6 in 10 sherds in poor conditions. Experiments carried out in other projects in Cyprus confirm that walker effectiveness can be as bad as Schon predicted, especially in fields with poor visibility.[12]

Figure 9.1. Preparation of pottery for seeding experiments in 1999. Photo from EKAS Archive.

Figure 9.2. These fieldwalkers appear to be doing the same activity (counting and sampling) but may end up with very different approximations of assemblages due to field conditions, attentiveness, and recognition of artifacts. Photos by author.

The important takeaway from the experiments of Schon and others is that walkers engaged in typical pedestrian survey generally see only a small percentage of the objects actually present on the surface of their swath even under ideal conditions. That gap, in fact, is compounded by other factors: the amount of ground physically visible, the spacing and coverage of walkers within a field, and the unpredictable relationship between surface to plow zone. Under ideal conditions, in a field with high visibility, in which fieldwalkers correctly recognized on average as much as 80% of the actual artifacts present, a 20% sample of the surface would reduce the sample of visible objects in the field to 16%.[13] In lower visibility units,[14] where recovery rates on average hovered around 30% in the EKAS experiments, the sample would represent only 6% of what was present on the surface in the field. Moreover, since the objects on the surface represent only 1/20th to 1/6th what is present in the first twenty centimeters of the plow zone (5%–16% of objects),[15] then the sample would represent (depending on visibility) 0.30%–2.60% of the quantities of artifacts actually present in the plow zone. In short, surveyors see the tip of a vast submerged iceberg when they sample objects from the surface of the ground.

Thinking through this limitation encourages prudence in the analysis of artifact scatters and warns against the fallacy that survey counts are wholly reliable or representative indexes of actual artifact density. This discussion confirms a major point of critical survey literature: the documented record of the surface incompletely reflects true assemblages in surface and subsurface deposits. We will return to appropriate responses to this problem after considering other source factors that limit our vision.

9.2. Managing Walker Variability through Transects, Units, and Zones

One of the most valuable conclusions of Schon's experiments was how differently individual walkers may see the surface (Table 9.1). The experiments highlighted variation in accuracy between the most accurate fieldwalker (who identified the highest percentage of seeded artifacts) and the least accurate fieldwalker. Even when field conditions were near perfect, identification rates varied by 18%; that gap widened to 33% in fields with lower visibility. A standard deviation analysis of the data suggested that 95% of the time one can be confident that recovery rates should vary up to 25% in fields with medium to good

Walker	Overall Rank	Field 1	Field 2	Field 3	Field 4
1	*1*	1	3	2	2
2	*2*	4	6	3	1
3	*3*	6	6	2	3
4	*4*	7	4	4	5
5	*5*	2	8	2	5
6	*6*	8	7	1	4
7	*7*	9	1	8	8
8	*8*	8	5	6	7
9	*9*	8	2	9	9
10	10	3	9	5	8
11	11	5	10	7	6

Table 9.2. Fieldwalker effectiveness expressed as rank arranged from most accurate to least accurate (based on data in Schon 2002, Table 5.3). Fieldwalkers with the same rank for a field produced the same counts.

visibility (Fields 1, 3–4) and up to 42% in fields with poor visibility.[16] Individual fieldwalkers working in the same space may see objects in widely divergent ways.

If fieldwalkers in Schon's experiments produced divergent counts when compared with one another for the same transects, their accuracy also varied across fields in inconsistent ways. Accuracy relative to one another changed between fields, and accuracy of each individual fieldwalker often changed between different passes of the same field. Table 9.2, which ranks the most accurate to least accurate walker per field, demonstrates this.[17] Other than Walker 1, who consistently ranked among the top 3 most accurate fieldwalkers in all 4 fields, and Walker 4, who consistently belonged to a middling rank, those involved in the experiment counted inconsistently in respect to one another. Sometimes field conditions clearly influenced individual walker accuracy (relative to others), while in other cases, the reason for variation is unclear.

Although fieldwalkers were not consistently accurate counters, Schon astutely observed that individual walker counts nonetheless tended to average out over a large number of passes because "someone who is the best one day, may perform relatively poorly the next."[18] Aggregated over numerous swaths, his study predicted that less accurate fieldwalkers placed on teams with more accurate fieldwalkers

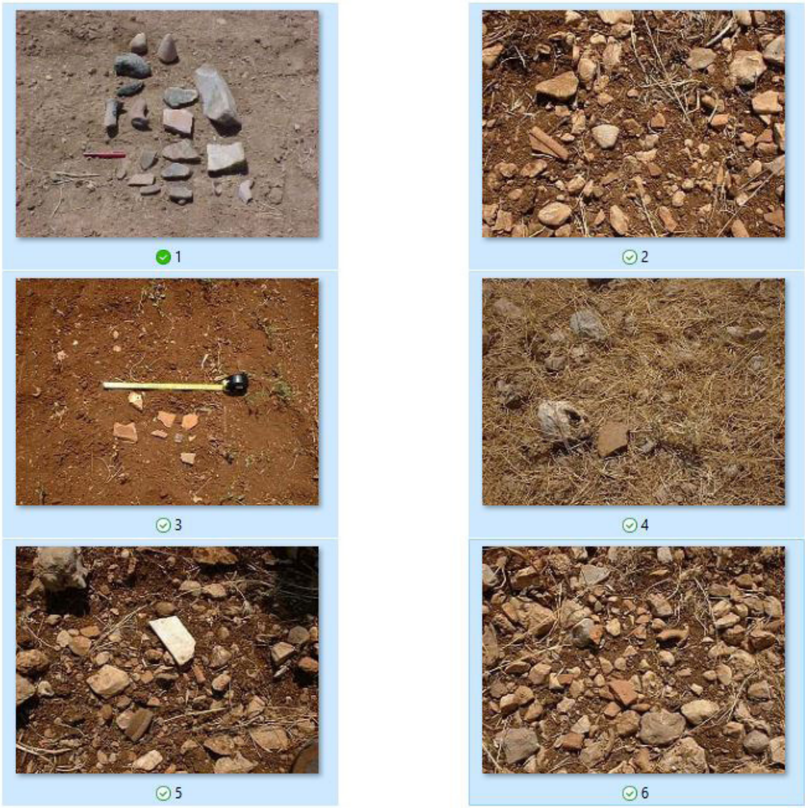


Figure 9.3. Actual Corinthian artifacts against different backgrounds. All fieldwalkers should notice the largest artifacts that stand out against their backgrounds in shape (e.g., handles) or color (e.g., the white marble), but not necessarily smaller objects, especially in poor visibility areas. Photos by author.

Walker	Sherds	Tiles	Lithics	Other	Total
1	28.30	12.53	0.12	0.13	41.08
2	27.47	7.79	0.07	0.22	35.56
3	22.33	12.27	0.04	0.31	34.95
4	21.79	12.83	0.21	0.08	34.91
5	28.27	5.70	0.03	0.50	34.51
6	23.50	10.18	0.18	0.07	33.94
7	25.51	7.50	0.41	0.03	33.44
8	26.65	5.75	0.09	0.35	32.85
9	24.11	8.58	0.11	0.04	32.84
10	26.25	4.74	0.05	0.19	31.23
11	20.70	9.63	0.04	0.13	30.50
12	20.41	7.00	0.31	0.17	27.88
13	16.62	9.98	0.08	0.23	26.90
14	22.55	3.54	0.10	0.45	26.64
15	16.31	7.76	0.16	0.01	24.25
16	18.38	5.56	0.15	0.11	24.20
17	17.15	6.91	0.07	0.01	24.14
18	19.28	3.65	0.07	0.39	23.39
19	14.90	5.06	0.11	0.14	20.21
20	15.14	4.41	0.04	0.11	19.70
21	14.27	3.33	0.15	0.41	18.16
22	8.96	3.13	0.04	0.11	12.24
Average	*20.86*	*7.17*	*0.12*	*0.19*	*28.34*

Table 9.3. The average number of artifacts of different classes per walker transect arranged from highest total to lowest total.

would produce average counts over the course of a field season, and that recovery rates between the least accurate and most accurate fieldwalker would generally differ by less than 18%.[19]

The limitation of the 1999 experiments (and survey experiments of this kind) is that they tested walker effectiveness under controlled conditions in which a fundamental element of *actual* survey—namely, collaborative work—was missing. In the experiments, walkers surveyed transects individually, in isolation from one another, with no communication with others. Yet real survey is more like a network activity in which individual team members count and identify objects in coordination with and awareness of others. The very process of co-participation—of doing work in conjunction with others—necessarily influences results. Much as I quicken the pace of a morning run when I am running with faster running marathoners, surveyors affect each other's recognition of objects and influence the aggregate counts of the team through a range of verbal and non-verbal communications. Surveying alone is not the same as surveying together.

This network effect on walker count is clearest in the sub-tract artifact counts recorded by EKAS between 1999 and 2003. In these years, field teams recorded thousands of unique swaths in which individual walkers counted pottery, tile, lithics, and other artifacts. Discovery Unit 596, for example, generated a total count of 492 artifacts (364 sherds, 123 tile fragments, 2 lithics, and 3 other), distributed in this way: SAM counted 87 sherds and 16 tile fragments (Swath 1); ERJ 62 sherds, 71 tile fragments, 1 lithic, and 2 other objects (Swath 2); DKP 100 sherds, 17 tile fragments, 1 lithic, 1 other (Swath 3); WRC 63 sherds and 9 tile fragments (Swath 4); and DAN 52 sherds and 10 tile fragments (Swath 5). EKAS surveyors walked 5,535 distinct transects like the 5 swaths in DU 596.

Considering this data as a whole shows significant ranges in walker counts. Table 9.3 shows the average count of artifacts of different classes per unit for every fieldwalker who surveyed at least 100 Discovery Units. Walker 1, for example, counted on average 28.3 pottery sherds per swath, 12.53 tiles, .12 lithics, and .13 other.[20] The range in the average total number of artifacts per unit (final column) is substantial, with 41 on the upper end and 12 on the lower end: Walker 1 (W1) found on average almost 3.5 times more artifacts than Walker 22 (W22). While range may in part reflect real differences in density across the survey zone, the numbers nonetheless confirm my memories about those super effective walkers (behind the labels W1 and W2), who took their time to count a higher number of objects, and the least effective walkers (like W22), who regularly counted few objects.

The greatest variation was evident in the identification of specific object classes. The varying proportions of sherds to tiles suggest that some walkers tended to lump small *tile* fragments into a generic *sherd* category: contrast W14, who counted 6.4 sherds for every tile, with W13, who counted 1.7 sherds per tile. Certain walkers more consistently identified *lithic* objects: 2 fieldwalkers (W7 and W12) recorded a stone artifact on average every second or third transect while other fieldwalkers counted stone objects no more than 1 out of every 8 transects at best. Some walkers were much better in identifying *other* artifact types, such as glass, marble, and metal: W5 and W14 identified

Figure 9.4. Lithic artifacts, glass, and lamp fragment, objects that surveyors are most likely to miss due to small size or inexperience. Photo from EKAS Archive.

Figure 9.5. Typical surface assemblages of chunky tile, pithoi, coarse ware sherds and handles, loom weights, and ground stone. Consider the size of objects in contrast with those shown above. Photo by author.

Walker	Swaths Walked	Sherds	Tiles	Lithics	Other	Total
1	201	28.27	5.70	0.03	0.50	34.51
2	192	25.01	7.48	0.07	0.36	32.92
3	237	26.65	5.75	0.09	0.35	32.85
4	214	26.25	4.74	0.05	0.19	31.23
5	220	19.28	3.65	0.07	0.39	23.39
Average		25.09	5.47	0.06	0.36	30.98
Walker	**Swaths Walked**	**Sherds**	**Tiles**	**Lithics**	**Other**	**Total**
1	231	21.62	3.22	0.10	0.36	25.31
2	279	18.38	5.56	0.15	0.11	24.20
3	256	17.35	4.67	0.12	0.14	22.28
4	240	16.24	4.69	0.04	0.12	21.09
5	236	15.31	3.44	0.18	0.47	19.40
Average		17.78	4.32	0.12	0.24	22.46

Table 9.4. Average number of artifacts of different classes for 2 field teams in 2000 season.

a miscellaneous object 1 in every 2 transects while walkers W7, W15, and W17 noted such objects 1 in every 50 to 70 transects. This disparity may be explained by the role of experience and a trained eye for identifying non-ceramic objects,[21] and the smaller size of certain objects (such as chert flakes, obsidian bladelets, and glass fragments).[22] All the same, the analysis suggests that the differences of individual walkers also contributed to undercounting tile, lithics, and other types of non-ceramic objects in the survey.

While the variation in counts from tract to tract, walker to walker, and field to field is striking, it does tend to wash out in the aggregate as Schon observed. Comparing the average counts of artifact categories for 5 regular walkers from each of the 2 field teams from the 2000 season (Table 9.4) shows a relatively smaller range of counts between members of the same team. In Team One, there was a single low counter among an otherwise consistent team of walkers: the less effective surveyor counted on average about 8 to 10 fewer objects per swath than every other team member who produced consistent counts on average. In Team 2, the most effective walker (W1) counted only 6 more artifacts per swath than the least effective (W5).

The effects of this averaging and the narrow range of walker variability within a single field may be explained by the team effect noted earlier. The very process of carrying out survey *as a team* reduces variability over the course of numerous transects. The influence of team members tallying objects (*click, click, click*...), calling artifacts aloud as they see them ("sherd," "lots of tile"), changing their pace as they encounter high-density areas, and shouting their total counts to team leaders at the end of their swaths have clear effect in alerting otherwise inattentive and sleepy fieldwalkers to the presence of changing densities before them—which they might well miss if surveying the unit individually. The averaging of densities over a season, however, does not help much to improve the identification of non-ceramic objects like stone flakes and glass, marble, and handstones, which are smaller, less common, and unrecognized during survey.

The aggregation of more transects, then, carried out in a team environment, has the effect of smoothing variability that is most acute in smaller sample sizes. The count from a single swath is subject to being most off target because it comes down entirely to the effectiveness of the walker and the particular surface conditions and vegetation. A survey unit count based on the swath counts of multiple walkers has a positive effect of stabilizing variation through an averaging of high and low counts across a unit. Larger survey units with a greater number of swaths should provide a more accurate average than the smallest units that depend on one or two individual swaths, and the aggregate of multiple units over the course of a season would clearly reduce variation. Paradoxically, then, we can conclude that a higher resolution view of the landscape, made possible through distributional survey methods and small survey units, comes at the cost of loss of accuracy, while the aggregation and averaging of counts improves accuracy even as it reduces resolution.

Walker variability, like recovery rates, comes with no auto-correct feature, but one may evaluate artifact densities at different spatial thresholds—on the one end, mapping changes in artifact counts per unit (i.e., unit densities), and, on the other, patterning the different parts of the survey region into larger aggregate blocks that reduce resolution but improve accuracy. The solution that I have preferred is to pattern distributions according to 1) the 1,338 survey units (Section 7.2) and aggregate by 2) broader *zones* (Section 7.3).[23] Both approaches mark an act of studying the landscape and its patterning of density at different scales. The latter present lower resolution views of density, but their aggregate averaging makes them less susceptible to variable density counts since variations wash out over greater area; they also facilitate discussing the Corinthian landscape without having to name individual survey units. In Chapters 10, 12, and 13, I will use both zones and survey units to analyze the distribution of material over the landscape.

9.3. Calibrating and Managing Varying Surface Visibility and Field Condition

In discussion to this point, I have described how much field conditions exert a significant impact on recovery rates and walker variability. Decades ago, archaeologists recommended resurvey over multiple years as an important step in discerning artifact densities.[24] They observed how small differences in field conditions, such as changes in land use, could make incredible differences in the ability of walkers to recognize artifacts and the actual number of objects on the surface. Fresh plowing of a field might produce a very different set of patterns.

The question of surface conditions was of course an essential variable tested in EKAS's experiments. Schon showed that lower surface visibility adversely affected artifact density in a consistently linear way but not always in an equivalent way.[25] Fewer objects were usually found in poor-visibility units, but visibility could not perfectly predict density: fields with very low visibility still generated objects while near total visibility conditions (90–100%) did not guarantee complete recovery; halving a surface visibility from 80% to 40%, moreover, did not result in a simple halving of artifact counts.[26] Schon observed that decreasing visibility was associated with a greater range of variability in recovery rates so that "the potential for discovery of a given artifact becomes more a matter of chance than of strategy."[27] Besides surface visibility, he found that background disturbance also had a consistent effect on artifact recovery rates.[28] Fields with good visibility but substantial quantities of clastic particles (cobble, pebble, and vegetation) generally reduced artifact recovery rates by up to 40%, while the average difference in recovery rates between a field with low and high background disturbance was 27%.[29] In our analysis of datasets from a high-resolution survey of an urban site (Pyla-*Koutsopetria* Archaeological Project in Cyprus), Bill Caraher, Dimitri Nakassis, and I similarly observed the complex correlation between density and visibility, concluding that "artifact recovery rates did not consistently increase as visibility improved."[30]

Figure 9.6. These photos of Corinthian fields highlight how surface clast and clast size, vegetation and percent visible, and soil condition, plowing, and compaction make counting artifacts an inconsistent business. Photo from EKAS Archive.

These observations clearly have relevance to the EKAS datasets. Over a quarter of survey units had surface visibility ranges of 0–30% and average surface visibility was only 57%. Some 15% of survey units also had "heavy" background disturbance (cf. Figure 9.6).[31] All of this indicates that the density of survey units obviously does not mark a straightforward index of actual quantities on the ground because units with less ideal visibility significantly underrepresented the amount of material actually on the surface in ways that are difficult to predict. Even in high-visibility units, densities probably are not what we would expect.

While correcting for the differences of environmental conditions may not be perfectly straightforward, I believe that it is better to attempt some correction, however imperfect, than to analyze raw density without correction. I favor two strategies for engaging with these problems: 1) calibration for poor visibility and 2) stratified density units defined according to similarities of conditions.[32]

Calibrating densities to account for surface visibility is valuable even if artifact recovery does not have an equivalent linear relationship to visibility.[33] Here and in subsequent chapters, I will calibrate a corrected density per unit in a simple way—multiplying density by a factor of 1 divided by the fraction of the ground visible.[34] Thus, in 100% visibility units with 100 counted artifacts, the calibrated value would be 100 x (1/1) = 100; given the same density with 50% visibility, the calibrated value would be 100 x (1/.5) = 200. As imperfect as this calibration method is, I believe that it better approximates underlying densities than if we did not calibrate at all.[35] In Chapter 10, I correct density for visibility at the level of zone, which has the effect of averaging variation in calibration over a broader space and thereby reducing distortions that may result from calibration on a case by case basis.

Calibration is less straightforward for dealing with background disturbance, which is measured in an impressionistic way. For that reason, I favor a second approach for patterning the densest units—stratified density units—which is a modified version of a technique that Bill Caraher, Dimitri Nakassis, and I used in a previously published analysis of distributional survey in the region of Kromna.[36] I defined top density units to take account of different surface visibility rankings (as in that earlier analysis) but also factored in two additional variables that impact density in a significant way: 1) background disturbance and 2) unit size.[37] I have already commented on the significant impact of the former. The other variable (unit size) dramatically impacts an estimation of density because the density value of highly localized clusters washes out as unit size increases. This is obvious when we look at the spatial area of the densest units in EKAS: the highest density units are typically the smallest. Of units ranking in the top tenth of artifact densities in EKAS, nearly 80% come from units that are smaller than the average unit size (2,895 m2). In contrast, localized spikes in densities wash out in larger units with greater area. Unit area can also distort density because small survey units are more susceptible to surveying errors: a walker who surveys a swath at the edge of a unit boundary of a small unit may distort densities by adding an additional set of counts to the total tally of objects in the unit. Greater area, conversely, reduces the effects of variation and error albeit at the cost of resolution.

To reduce the effects of a single factor in distorting a view of high-density units in the Corinthia, the stratified approach defines the densest decile of units as the top 10% of 40 separate classes of units, which correspond to 5 visibility classes (poor–excellent),[38] 2 background disturbance classes ("None to Light" to "Moderate to Heavy"),[39] and 4 surface area quartiles (**Q1:** 2–920 m2, **Q2:** 921–1967 m2, **Q3:** 1968–3629 m2, and **Q4:** 3642–48331 m2).[40] In this schema, which is admittedly complex, I selected the top 10% of each quartile of units of a given surface area range (Q1–4) according to the following 10 divisions:

1. Poor Visibility (0–20%), Substantial Disturbance.[41]
2. Poor Visibility (0–20%), Minimal Disturbance.
3. Below Average Visibility (21–40%), Substantial Disturbance.
4. Below Average Visibility (21–40%), Minimal Disturbance.
5. Average Visibility (41–60%), Substantial Disturbance.
6. Average Visibility (41–60%), Minimal Disturbance.
7. Above Average Visibility (61–80%), Substantial Disturbance.
8. Above Average Visibility (61–80%), Minimal Disturbance.
9. Excellent Visibility (81–100%), Substantial Disturbance.
10. Excellent Visibility (81–100%), Minimal Disturbance.

Defining the top decile of highest-density units in this way generates a class of 135 survey units, slightly over 10% of 1,338 total units intensively surveyed by EKAS. These 135 units reflect the densest units from 40 unit classes as defined by unit surface area, visibility, and background disturbance.[42] I will use these Stratified Top Density Units only to analyze total artifact density (Ch. 10), and not period densities (Ch. 12), because the small sample size of assemblages of specific periods—in some cases, comprising only 1–2 objects—could easily distort estimates of period density.

This method of stratifying overall artifact densities is hardly perfect and is about as conceptually complicated as Cleisthenes' trittyes system of Athenian tribes, but it at least accounts for environmental factors that impact artifact recovery rates while also reducing the distorting effects of small survey units. This approach, which selects highest-density areas of the EKAS territory across a range of surface conditions and unit sizes, is preferable to plotting highest-density areas according to raw artifact densities, unfiltered for visibility, background disturbance, or unit size.[43] In the next chapter, I will compare the distribution of these high-density units in the survey territory with other ways of mapping surface assemblages, including unfiltered high-density areas and the aggregate collectives of fifty broader zones corrected for surface visibility as described above in Section 9.2.

9.4. Artifacts, Sites, and Processes

Our discussion of total counts to this point has described some of the well-known gaps between archaeological samples and the surface record—gaps caused by aspects of the physical record (e.g., artifact size), conditions of the surface (e.g., visibility and disturbance),[44] and limits of collection (e.g., walker experience, attentiveness, and variability), among others.[45] There are no easy solutions to correct for these problems but only imperfect work-arounds. Mapping densities at broader thresholds such as zones, I have suggested, may wash out variable field conditions and walker counts through aggregation and averaging—but at the cost of fine-grained resolution. Calibrating for variable surface visibility provides a simple but imperfect corrective for addressing the effects of ground cover that distort artifact density. Patterning the data according to different visibility thresholds and background disturbance estimates (stratified units) creates some small control over multiple variables of field conditions (visibility and background disturbance).[46] None of these offer absolute fixes to gaps; they are pathways in damage control.

The gaps we have discussed to this point are those we can measure and approximate, but the situation is complicated further by all those underlying conditions and contingent processes that leave gaps that are impossible to measure. A wide variety of archaeological formation processes and historical factors have affected the population of surface artifacts and features long before archaeologists arrive to make a record of the landscape.[47] Landowners or renters build and tear down buildings, recycle and cart away pottery and building blocks, move house and home, sell produce, manure fields, and abandon and later reuse domestic space. Houses grow and shrink over time as the household changes. Domestic space becomes religious space becomes storage space. The environment itself forms a transformative agent in burying, transforming, eroding, and exposing human remains and contexts. We see the results of these processes, sometimes centuries or even millennia later, as aggregate surface scatters in the countryside. And we often naively assign them categorical names—"farm", "villa," "village," or "town," for example—when such scatters actually represent centuries-long processes of formation, reduction, and transformation.

A critical survey approach to analysis of surface scatters must move beyond imperfect correctives to rethink the meaning of surface scatters of artifacts and features. It is important to restate that our records of scatters never mark simple proxies of past habitation, but reflect, above all, the complex processes and transformations of past culture, nature, and our own inaccurate archaeological measures.[48] Site surveyors are constantly tempted to translate surface scatters into ancient categories of settlement, but such interpretive inferences often transgress the limits of evidence, except in those rare cases when excavation follows survey. More critically, slapping categorical labels on surface artifact or feature clusters can fundamentally misrepresent that artifact scatters are the aggregate residues of complex processes. In artifact-rich environments, an analyst would do better to begin with basic descriptions of densities and then subsequently establish site categories on a period-by-period basis through a process of integrating a fuller range of evidence (Ch. 14).

My own preference for reading the variation of total densities in artifact scatters in culturally rich environments has been to recognize density values as imperfect indexes of the intensity, longevity, and frequency of past human activity and habitation. The densest artifact quantities, in this view, indicate places of sustained human processes that generated more intensive forms of human habitation, repeated habitation, or long habitation over time. The sparsest artifact densities represent depositional processes of the shorter term like brief habitation and activity, less frequent activity, and less intensive activity in human interactions with soils, terraces, agriculture, travel, industry, and animals. This kind of critical thinking about the processes behind artifact densities provides a more honest and consistent pathway to first-order descriptions of continuous carpets that avoids the pitfalls of too readily adopting interpretive categories that are mismatched to the complex realities that they represent.

Finally, it's worth reiterating that our sample of the density of the surface of a landscape via typical pedestrian survey methods primarily gives us a sense of dominant patterns in the landscape rather than true presence or absence. We can only assume that what we have seen and counted approximates only in some distant, imperfect way what was actually visible at the time of survey. We may speak constructively about human activity in those locations of high density, but we ought not to draw too much meaning from the absence of pottery, tile, obsidian, glass, or metal. A change in land use, a fresh plowing, an experienced survey team, or even an overnight rain could be the difference between absence and presence, or low and high density. All of this argues in favor of a careful and critical approach to interpreting artifact densities in the Corinthian landscape.

01100010 01110010 01100101 01100001 01101011

In this chapter, I have worked to introduce a range of processes that we need to consider in critical ways as we analyze the counts recorded through data-driven distributional survey approaches. Our sampled counts of surface distributions, I have noted, are always a minute approximation of the total amount of material actually present on the surface, let alone the vast ocean of human experience in that place in the past. We must all become sharper analysts when deploying survey data to make arguments about past settlement and land use by recognizing the processes behind the scatters we interpret. Having examined some of the issues that affect our ability to see cultural material in the landscape, we can now turn to a separate difficult question—the spatial distribution of total densities.

Endnotes

1 For recent reviews of recovery rates, see Attema et al. 2020; Meyer 2022, 146–150; Knodell et al. 2023.

2 https://n2t.net/ark:/28722/k2tm7mz79

3 https://n2t.net/ark:/28722/k2k64wr1k

4 Shennan 1985, 40; Plog, Plog and Wait 1978, 413; Cherry et al. 1991; Schon 2002.

5 This is well-established in survey literature. See, for example, Bintliff, Howard, and Snodgrass 1999, who note that walkers in the Boeotia (https://pleiades.stoa.org/places/540689) survey frequently missed non-ceramic artifacts like flint percussion flakes or slim obsidian bladelets of prehistoric date. Cf. Attema et al. 2020, 8–9, 12.

6 The experiments were part of doctoral research on the effects of human judgment and field conditions on walker counts: see Schon 2002 with discussion of earlier work; https://n2t.net/ark:/28722/k2vh5zg3r.

7 https://n2t.net/ark:/28722/k2tm7mz79

8 The 3 transects were seeded with different sherd quantities to replicate fields with different density thresholds ranging from low to high density.

9 On walker variability, see Schon 2002, 179–191.

10 https://n2t.net/ark:/28722/k2tm7mz79

11 https://n2t.net/ark:/28722/k2tm7mz79

12 Schon's seeding experiments for TAESP in Cyprus (2013, 36–37) discerned an average recovery rate of 56% in good visibility conditions (mean surface visibility (https://n2t.net/ark:/28722/k2tm7mz79): 67%). Experiments for PKAP in Cyprus compared pedestrian survey methods with more intensive total collection techniques and showed that pedestrian survey on average generated counts only 27% of those produced in the same unit through hoovering. Our estimations of densities using pedestrian survey methods were worst in units with overall lower density. Cf. Pettegrew 2014.

13 This calculation assumes fieldwalkers were spaced at 10 meters intervals examining 1 meter on either side.

14 https://n2t.net/ark:/28722/k2tm7mz79

15 Bintliff, Howard, and Snodgrass 1999, 154; Attema et al. 2020, 39.

16 Schon 2002, 185–186; visibility: https://n2t.net/ark:/28722/k2tm7mz79

17 Cf. Schon 2002, Tables 5.32 and 5.33, on page 188, which similarly ranks walker accuracy but according to pass.

18 Schon 2002, 232.

19 Schon 2002, 185–186, based on standard deviation analysis.

20 In recording counts, I used a minimum value of 100 transects to rule out more inexperienced walkers.

21 Bintliff, Howard, and Snodgrass 1999. Cf. Pettegrew 2014, 61–62. In EKAS, 5 fieldwalkers together identified nearly 40% of all of the project's lithics.

22 Schon 2002, 236–37.

23 Discovery Units (https://n2t.net/ark:/28722/k2df72g4h), zones:(https://n2t.net/ark:/28722/k2pv6tk84).
24 Ammerman and Feldman 1978; Ammerman 1985.
25 Schon 2002, 150–155: see Chart 5.5 on p. 151. His correction chart for recovery rate per visibility (https://n2t.net/ark:/28722/k2tm7mz79) was based on an average recovery rate of all passes conducted in the experiment: 100% visibility → 87% recovery, 90% VIS → 80% REC, 80% VIS → 73% REC, 70% VIS → 66% REC, 60% VIS → 59% REC, 50% VIS → 51% REC, 40% VIS → 43% REC, 30% VIS → 37% REC, 20% VIS → 29% REC, 10% VIS → 22% REC, 0% VIS → 16% REC. These values show that the relationship is most equivalent at visibility ranges between 70% and 40% and least equivalent when visibility was 0–20% or 90–100%.
26 Visibility (https://n2t.net/ark:/28722/k2tm7mz79)
27 Schon 2002, 155.
28 Background disturbance (https://n2t.net/ark:/28722/k2k64wr1k)
29 Schon 2002, 162–163, 231, 236; Clast: https://n2t.net/ark:/28722/k2543479t.
30 Caraher, Nakassis, and Pettegrew 2014, 39–40.
31 Background (https://n2t.net/ark:/28722/k2v98k29s), visibility (https://n2t.net/ark:/28722/k2tm7mz79)
32 https://n2t.net/ark:/28722/k2tm7mz79
33 https://n2t.net/ark:/28722/k2tm7mz79
34 This method extrapolates density by a simple linear assessment: cf. Bintliff, Howard, and Snodgrass 2007, 21.
35 https://n2t.net/ark:/28722/k2tm7mz79
36 Caraher, Nakassis, and Pettegrew 2006, 15, which defined densest units as the top 10% per percentage visible; Kromna (https://www.geonames.org/12514059/kromna.html).
37 Background (https://n2t.net/ark:/28722/k2v98k29s), visibility (https://n2t.net/ark:/28722/k2tm7mz79)
38 https://n2t.net/ark:/28722/k2tm7mz79
39 https://n2t.net/ark:/28722/k2k64wr1k
40 https://n2t.net/ark:/28722/k2xp7f19q
41 Visibility (https://n2t.net/ark:/28722/k2tm7mz79), background disturbance (https://n2t.net/ark:/28722/k2v98k29s).)
42 Surface area (https://n2t.net/ark:/28722/k2xp7f19q), visibility (https://n2t.net/ark:/28722/k2tm7mz79), and background disturbance (https://n2t.net/ark:/28722/k2k64wr1k)
43 Surface area (https://n2t.net/ark:/28722/k2xp7f19q), visibility (https://n2t.net/ark:/28722/k2tm7mz79), and background disturbance (https://n2t.net/ark:/28722/k2k64wr1k)
44 Visibility (https://n2t.net/ark:/28722/k2tm7mz79), and background disturbance (https://n2t.net/ark:/28722/k2k64wr1k)
45 Pettegrew 2014; Meyer 2022, 146–150.

46 Visibility (https://n2t.net/ark:/28722/k2tm7mz79), and background disturbance (https://n2t.net/ark:/28722/k2k64wr1k)

47 On formation process archaeology and survey, see, among others: Schiffer 1996; Pettegrew 2001; Foxhall 2000 and 2001; Osborne 2001; Bintliff et al. 2002; Attema et al. 2020, 15–21, 35, 45; Pettegrew and Caraher 2021; Sanders, Yoo, and Sanders 2021; Knodell et al. 2023, 295–296; Bintliff 2023.

48 Schiffer 1996; Pettegrew 2001.

Chapter 10
Artifact Distributions

Mediterranean archaeologists have sometimes thought about surface scatters much like Kent Flannery's fictional character, the Real Mesoamerican Archaeologist: "Surface remains are just that—the junk you find on the surface."[1] That sentiment may be cynical, but it is not without reason: surface scatters are generally homogenous, fragmentary, eroded, and poorly dated. The challenge that surface assemblages present to landscape archaeologists, we have seen (Ch. 9), centers around their uncertain and complex relationships with subsurface deposits and the original settlement systems they represent. How do scholars make sense of "nebulous smears of surface data" of archaeological landscapes in the real human terms of settlement, mobility, and land use?[2]

Data-rich approaches offer no silver bullet to answering these questions but provide a slate of tools for spatially bundling or unraveling layers to advance arguments about the past. Databases give analysts the power to deconstruct an assemblage of artifacts and features into its core elements, reconstitute an assemblage in new ways, and finely parse the overlays. GIS, moreover, offers ways to analyze cultural and natural overlays and measure density and spread of artifacts and features through tools such as Jenks analysis, near analysis, nearest neighbor analysis, and mean center analysis.[3] Data-driven approaches create the potential at least for understanding and mapping scatters at different scales—from the overall structure of densities to the granular level of cultural layers. They make it possible to retrieve value from the chronologically coarsest finds (Ch. 11, 12, and 13) that form most of the predominant surface "junk" surveyors collect, and they create the capacity of layering according to a wide range of objective criteria.

In this chapter I continue to explore the meanings of the patterns of EKAS surface assemblages documented across the region.[4] While the subsequent chapters will disentangle the landscape's layers through analyses of different periods, this preliminary analysis of total artifact densities and features across the region has value in highlighting the most general character and structure of artifact distributions. Artifact counts, converted to artifact densities, highlight those zones that have the most substantial material signatures that indicate more intensive, longer-term processes of human engagement that ultimately deposited more objects in those locations. In the eastern Corinthia,[5] we can see primary differences in density values between the central corridor and the southeastern region, between individual zones on the Isthmus,[6] and between the Corinthia and other surveyed regions. Moreover, a distributional analysis of one class of features—cut stone—reveals patterns that shed light on the history of the region. The places associated with high artifact density and features also show us occupations that last beyond individual periods, locations where activities were particularly intensive, and sites of significant material investment. Examining the Corinthian landscape in terms of total densities and distributions, then, contributes to the critical analysis and reuse of open data.

10.1. General Patterns in Total Artifact Densities

The most surprising thing about surveying the eastern Corinthia was its material abundance and variety of objects. The senior staff, who had taken part in earlier surveys in Boeotia, the Argolid, Epirus, and Kythera, among other regions, often commented on the exceptionally rich densities of artifacts that consistently complicated our definitions of LOCAs (Ch. 6).[7] I came to EKAS in 1999 after four summers of surveying southern Ohio's corn and bean fields—places in the United States where prehistoric and historic surface scatters, or stray projectile points, tended to stand out as discrete nodes and findspots across the landscape. In jumping the sea, I did not expect to encounter a region in which artifacts spread in a continuous carpet of undulating densities. Even marginal lands like the lower slopes of Mount Oneion,[8] the first area surveyed in summer 1999, produced the remnants of a long story of settlement, land use, and agricultural exploitation.

Putting this into some numerical terms illuminates the ubiquity of objects in the fields of the eastern Corinthia. Of the 1,338 units surveyed with standard methods of counting and sampling objects,[9] only 3% (n=45) produced zero artifacts—and nearly three quarters of *those* units had below average surface visibility (average = 57%). In fact, some

99% of units with excellent visibility (n=466), in which 80% or more of the ground was visible, produced artifacts. Keep in mind how small EKAS survey units were on average: less than 2,000 m^2 on average (median) with over a quarter of the units being smaller than 1,000 m^2. In 99 times out of 100, an olive grove or vineyard or grain field with good visibility produced vestiges of the past through a 20% pedestrian sample of the unit. It is not much of an understatement to say that objects could be and were found pretty much everywhere in the eastern Corinthia.

All broad classes of objects were well represented in the territory. Most of the counted artifacts consisted of ceramics: pottery made up nearly 74.3% of the totals and tile 24.6 %. The ubiquity of tile itself is remarkable: walkers counted tile fragments in over 87% of survey units (n=1170 of 1338) and 94% of high visibility units. Lithic objects and other objects (e.g., glass, marble, and nails) were found in relatively smaller numbers (0.4% and 0.7% of total counts) but were nonetheless ubiquitous. Lithic material was found in 1 of every 5 survey units generally and in a quarter of the units (n=117 of 466) when visibility conditions were excellent (80% or higher); other types of non-ceramic objects were found in 27% of the survey units and 35% when visibility was excellent. Given the incompleteness of our sample, I expect that stone objects and other kinds of objects were present in fields of the region more than they were absent. An analysis of specific finds in the *Finds Data Table* indicates that 10% of units generated marble or marble revetment alone and 16% of units produced glass.[10]

Artifacts were also numerous across the surveyed territory. Overall, the average (mean) count was 109 objects per unit based on a 20% sample, and 166 in units with excellent visibility (≥80%). Totals are most meaningful, of course, when represented as a density value that divides total count by the area of the unit walked. For the sake of comparison, I will translate raw artifact density into a putative artifact density per 2,500 m^2 (or a quarter of a hectare) because it approximates the median unit size.[11] The adjusted median total artifact density of EKAS survey units per area walked was 302 artifacts in a quarter hectare (mean: 655), which increased to 589 artifacts (mean: 1,007) in excellent visibility conditions. In other words, a typical EKAS survey unit of 2,500 m^2 with good visibility, if canvassed with 100% coverage, would yield on average 300 to 600 objects. That count itself would underestimate the amount of material actually on the surface and the even greater quantities in the ploughzone below (Section 9.1).

Comparing total densities with other surveys can be challenging,[12] but is possible if the basis of comparison adopts a similar technique of counting and sampling. Densities from two pedestrian surveys may be comparable, but those based on different modes of counting (pedestrian survey vs. hands-and-knees hoovering) would not be. Density estimates based on walkers counting a 2-meter-wide swath are not comparable to one estimated through use of a zig-zag method in which walkers cover a swath 5 or more meters wide. One cannot meaningfully compare the density figures for EKAS with published density figures for other regions unless something is known about how densities were generated from counts—which is another reason that archaeologists need to be transparent in their description of methods. It is enough here to note that the mean density per area walked in the eastern Corinthia (2,490 artifacts per hectare) based on pedestrian methods comes close to the lower threshold of the range of density values (ca. 3,000 or more) used to define archaeological sites in previous landscape archaeology projects in Greece.[13]

A comparison of densities with other survey projects in Greece and Cyprus points to the high densities of objects in the Corinthia, and especially the Isthmus. EKAS densities are similar to those recorded in a pedestrian survey near Larnaka, Cyprus (the Pyla-*Koutsopetria* Archaeological Project),[14] across a coastal urban center and its surrounding hinterland in areas with consistently good surface visibility (64%). Average unit size (2,141 m²) was slightly smaller than EKAS units (mean: 2,895 m²). The average artifact densities per area walked in this micro-region of Pyla-*Koutsopetria* (mean: 2,247 artifacts per hectare, median: 1,000) compares well with the average densities in the Corinthia survey (mean: 2,490, median: 1,206).[15] Likewise, the density in the EKAS survey region of lithic artifacts (9.5 per hectare) and other artifact classes (41.9) parallels the densities of lithics (7.1) and other artifact classes at Pyla-*Koutsopetria* (42.5). The comparison shows that the eastern Corinthia tracked well on average with the material signature of a large coastal town and its surrounding micro-region.

EKAS density values are also comparable to high-density suburban zones of Thespiai.[16] Since the Boeotia project calibrated density values to account for different surface visibilities, I follow the methods discussed earlier (Section 9.3) and adjust EKAS densities by calibrating to produce a putative density at 100% surface visibility. Calibrating in this way generates a mean density value of 4,854 artifacts per hectare, a value only slightly less than the density threshold (≥5,400 artifacts per hectare) that Boeotia Survey investigators suggest as marking the "urban inner core"—that is, the suburban zones of the Boeotian cities.[17] The typical EKAS survey unit, in short, has density levels just below what archaeologists in another region might have identified as suburban zones or high-intensity urban peripheries.

While the continuous carpets of artifacts in zones surrounding urban centers provide an immediate point of comparison to the high densities of the eastern Corinthia, a consideration of the more remote regions of Greece introduces a contrast. The survey of the Western Argolid Regional Project documented 18 km² of the Inachos River Valley in the region northwest of Argos.[18] Surface visibility in WARP was slightly worse (48%) than in EKAS (57%) and densities were drastically lower. The eastern Corinthia produced a mean artifact density (2,490)—uncorrected for visibility—3 times greater than the 801 artifacts per area walked per hectare recorded in the Western Argolid Regional Project and a median density (1,206) 25 times that of WARP (47).[19] The average uncorrected density of lithics (9.5 objects per hectare) was itself 11 times greater than WARP (0.84) and the density of other artifact types (EKAS: 41.9 per hectare) was over 4 times higher than that of the Western Argolid Regional Project survey (9.7).[20] Thus, while WARP documented areas of very high artifact density (increasing the mean), the vast majority of units had much lower density (reducing the median); EKAS had comparatively high median densities. The comparison highlights a difference between landscapes with continuous carpets and clustered nodes.

One must recognize, of course, that the high overall EKAS density marks an average value of the densities of all survey units examined through intensive survey, including the lower-density areas (the southern Corinthia districts), but especially the historically rich and well-traversed Isthmus in the immediate suburban zone of Corinth. In fact, I noted in an earlier section (Section 3.1) the survey's deliberate orientation toward the culturally thick suburban zones:[21] survey transects were intentionally chosen to shed light on the neighborhoods of sites such as Isthmia, Kenchreai, Gonia, and Kromna.[22] If EKAS teams had surveyed a greater share of the range of the eastern Corinthia's topographical and ecological niches, including the hilly and mountainous regions south of Mount Oneion, the average overall densities would have been lower; if they had surveyed more of the Isthmus, average densities would probably have been higher.

The comparisons and metrics described above, then, are primarily useful for drawing out the distinctiveness of the Corinthian Isthmus. That region has more in common with Greek urban or suburban

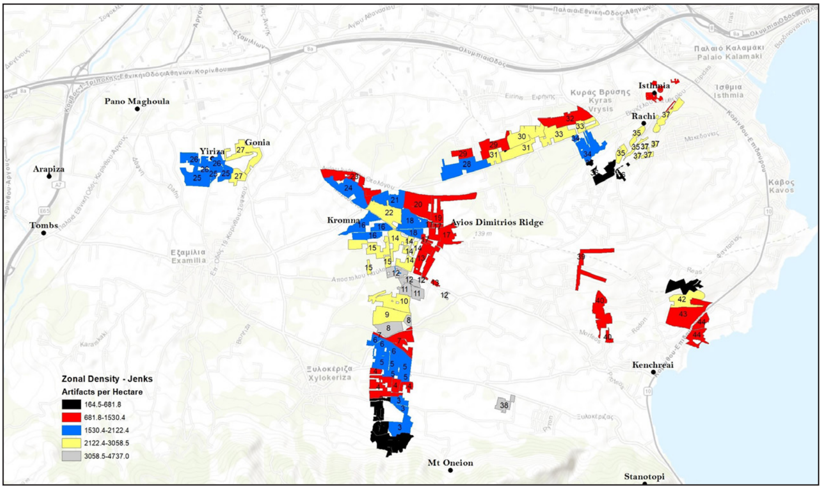


Figure 10.1. Total Artifact Density of EKAS Zones on Isthmus ranked according to Jenks Analysis based on total weighted density. Cp. Figure 10.2.

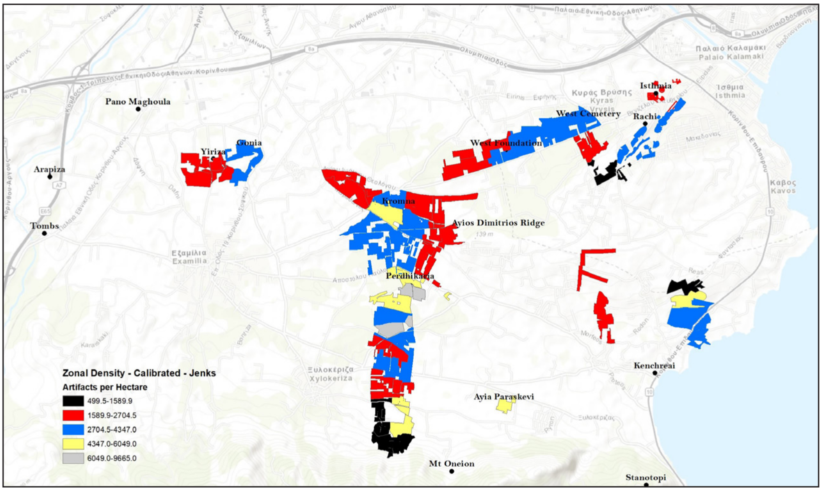


Figure 10.2. Total Artifact Density of EKAS Zones on Isthmus ranked according to Jenks Analysis based on total weighted density when factored for visibility. Cp. Figure 10.1.

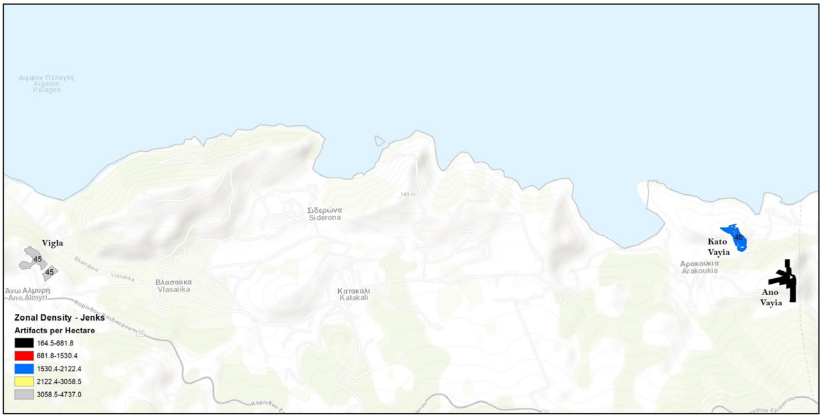


Figure 10.3. Total Artifact Density of EKAS Zones at Vigla and Vayia (Z45, Z46, and Z47) ranked according to Jenks Analysis based on total weighted densities Cp. Figure 10.4.

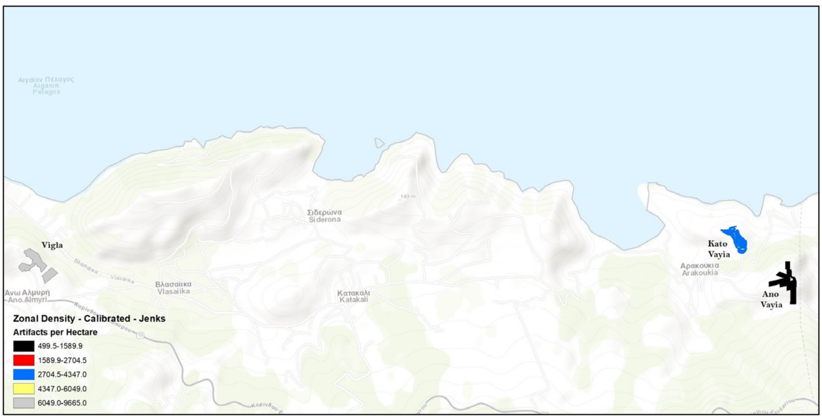


Figure 10.4. Total Artifact Density of EKAS Zones at Vigla and Vayia (Z45, Z46, and Z47) ranked according to Jenks Analysis based on total weighted density when factored for visibility. Cp. Figure 10.3.

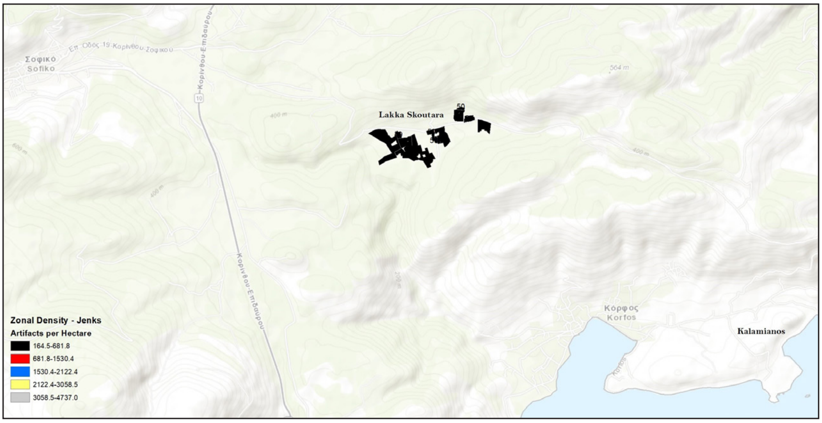


Figure 10.5. Total Artifact Density of EKAS Zones at Lakka Skoutara (Z48, Z49, and Z50) ranked according to Jenks Analysis based on total weighted density. Cp. Figure 10.6.

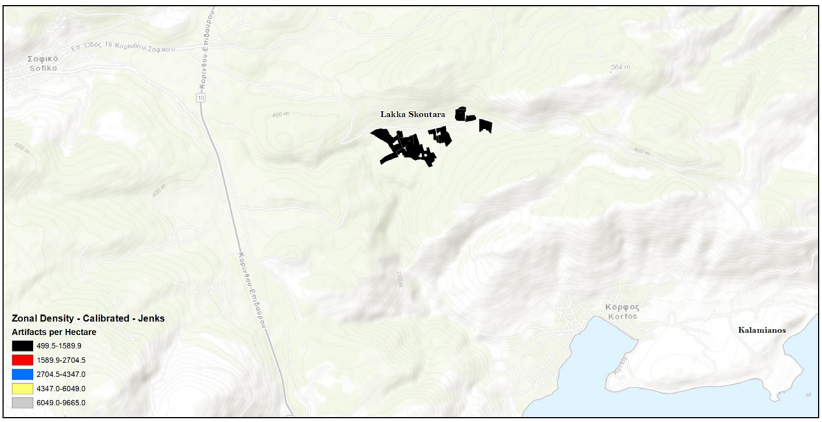


Figure 10.6. Total Artifact Density of EKAS Zones at Lakka Skoutara (Z48, Z49, and Z50) ranked according to Jenks Analysis based on total weighted density when factored for visibility. Cp. Figure 10.5.

landscapes (with continuous carpets of artifacts) than with more remote territories characterized by a sharp split between discrete concentrations (sites) and "off-site" scatters. When we examine the distribution of densities across the region according to zones and units, we can see these real variations in artifact-rich environments.

10.2. Spatial Distributions by Zones

Zonal analysis of total densities in the eastern Corinthia shows, unsurprisingly, that moderate to high-density areas were mostly recorded on the Isthmus (Figures 10.1 and 10.2) while lower-density areas were largely recorded in the southern territory (Figures 10.3, 10.4, 10.5, and 10.6). Every Isthmus zone produced weighted artifact densities significantly greater than the median density values of the Western Argolid Regional Project (47 artifacts per hectare). Only 4 zones of the Isthmus (Z1, Z2, Z36, and Z41) yielded artifact densities below 1,000 artifact per hectare, probably because of their very poor surface visibility.[23] In contrast, 4 of the 6 zones of the southern Corinthia below Mount Oneion produced densities below 1,000 artifacts per hectare. Only the coastal districts of the sites of Vigla and Kato Vayia yielded the moderate to high artifact densities comparable to the Isthmus.[24] In short, the Isthmus was on average much denser than the southern districts.

Yet, zonal analysis shows some significant variation. A Jenks analysis that divides total density values along natural breaks (Figures 10.1, 10.2, and 10.3, top) shows that the densest zones were not Kromna or Perdikaria,[25] but the coastal area of Vigla beyond the Isthmus; Ayia Paraskevi on the slopes of Mount Oneion;[26] and the ridgetop of Rachi Boska and the land immediately below.[27] Secondary high-density areas included zones near the Hellenistic monument known as the West Foundation (Z30 and Z31), the Hellenistic stadium at Isthmia (Z37),[28] the Examilia Quarries at Kromna (Z22),[29] and the western part of Perdikaria (Z15). All of these zones produced "site"-level densities in the range of 2,700–4,800 artifacts per hectare. Calibrating for visibility (Figures 10.1, 10.2, and 10.3, bottom) alters this pattern only slightly: Rachi Boska, Vigla, and Ayia Paraskevi remain the densest areas (with corrected densities of 5,600–9,700 artifacts per hectare), but also now include the zones of Kromna, the ridge of Panorama north of Kenchreai,[30] and Zone 3 on the slopes of Mount Oneion (4,300–5,600 artifacts per hectare).[31]

The other zones of the Isthmus fall in a spectrum between low, moderate, and moderate-high artifact densities. The low to moderate zones, which occupy the lowest 2 classes and have artifact densities below 1,500 artifacts per hectare, are distributed across the surveyed parts of the Isthmus. Calibration for visibility differences shows that at least some of the lower-density zones are adversely affected by poor visibility and that some higher-density zones are positively affected by better surface conditions. Corrected for visibility, the lowest density zones of the Isthmus are somewhat different (cp. Figure 10.1, top and bottom). Patterning the data in these two different ways, then, shows consistent patterns, while factoring in visibility contributes to a more sensitive reading of overall zonal densities in the eastern Corinthia.

Collectively, zonal analysis shows that higher-density zones were generally scattered across the Isthmus—focusing around declared archaeological sites like Gonia (and Yiriza), Isthmia, Kenchreai, Rachi Boska, Kromna, and the West Foundation, but also including uninvestigated areas on the lower slopes of Mount Oneion (Z3) and at Marougka (Z5),[32] for example. This analysis, corrected for surface visibility, also shows the extensive character of sustained high-density zones: almost all of the area from the lower slopes of Mount Oneion (Z3) straight north to the ancient road north of Kromna (Z21), including especially the extensive area of the Rachi Boska ridge and slopes below, have densities in the top 3 classes.[33] Lower density areas (< 1,500 artifacts per hectare) tend to lie at the peripheries of these areas: on the southwestern reaches of Isthmia (Z34, Z36), the western regions beyond West Foundation (Z28, Z29),[34] and on and near the Ayios Dimitrios Ridge (Z13, Z17, Z19, Z20, Z39, Z40, Z41).[35]

My overview to this point establishes an overarching picture of the densest zones of the survey region and the least dense zones as they are ranked *relative* to one another. The complexity of artifact patterning, of course, is that densities fall on a spectrum from exceptionally high to low density, and that almost all zones of the Isthmus—and several zones of the southern territory—remain well above the density thresholds used by surveyors to define "off-site" values. Indeed, some 70% of the zones (35/50) in EKAS have visibility-corrected densities above 2,350 sherds per hectare—a value that analysts in Boeotia have read as an "urban impact zone" in the hinterland of ancient Thespiai.[36] These rankings, then, point simply to a spectrum of densities within a high-density artifactual carpet, with the highest-density zones marking areas of especially intensive, continuous, or repeated occupation.

10.3. Spatial Distributions by Survey Units

If patterning density according to zones provides a general view of artifact patterns in the eastern Corinthia, individual survey units introduce nuance. There is no single way to pattern survey unit density data, of course, and it is better to tackle the problem with different measures. Among the most useful approaches is evaluating the top 10% (n=135) densest units in the survey territory, defined either as units with the highest overall density (i.e., *total density units*), or the highest-density units selected according to conditions of visibility, background disturbance, and unit size (Section 9.3: *stratified density units*). The former offers a quick list of the overall hotspots in the survey region without calibrating for different environmental or methodological conditions; the latter takes several factors into account to create a more careful selection of high-density units. There are significant overlaps in the lists as 62% of units (84/135) appear in both. In either case, units have density thresholds that surveyors elsewhere would define as "sites,"[37] even if they overlap with EKAS's defined LOCAs only a little over half the time (Figures 10.4, 10.5, and 10.6).[38]

The main difference in the result of these two approaches is the degree of clustering and dispersal. The first approach (*top decile total density units*) tends to highlight high-density artifact clusters in a single area since contiguous fields with high densities and similar surface conditions is likely to produce similarly high artifact densities. The second approach (*top decile stratified density units*), based on a stratification of the sample according to visibility, background disturbance, and unit size, reduces clustering by culling a wider range of units representing different environmental conditions. Nearest neighbor analysis in ArcGIS describes the pattern of the densest *total density units* as "clustered" (average distance between units is 67 m); the same analysis characterizes the *stratified units* as "dispersed" (average distance between units is 129 m).[39] Neither approach is inappropriate per se, but the stratified approach captures a wider array of high-density units affected by different environmental conditions.

Both approaches provide a finer-grained picture of total densities than could be deduced from subjective estimates in the field (LOCAs) or zonal distributions alone,[40] and both elucidate certain zonal density patterns. Patterning by total density of survey units, for example, highlights particular unit clusters that contribute to the overall zone's exceptional aggregate density, such as the high-density units on the lower slopes of Mount Oneion (Z3) or at Rachi Boska (Z8, Z10, Z12) that concentrate at certain ends (cf. Figures 10.1 and 10.4).[41] Patterning

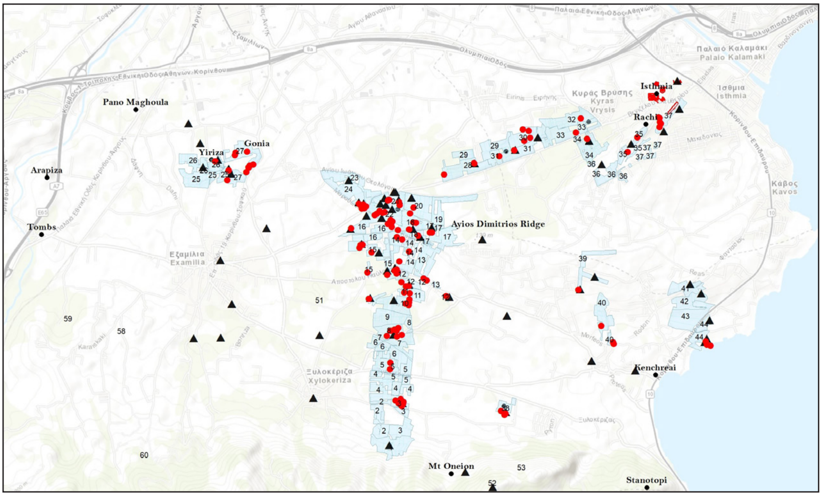


Figure 10.7. Top Decile Units (red circles) on Isthmus based on total density. Numbers indicate zones. Triangles show centroids of EKAS sites (LOCAs). Cp. Figure 10.8.

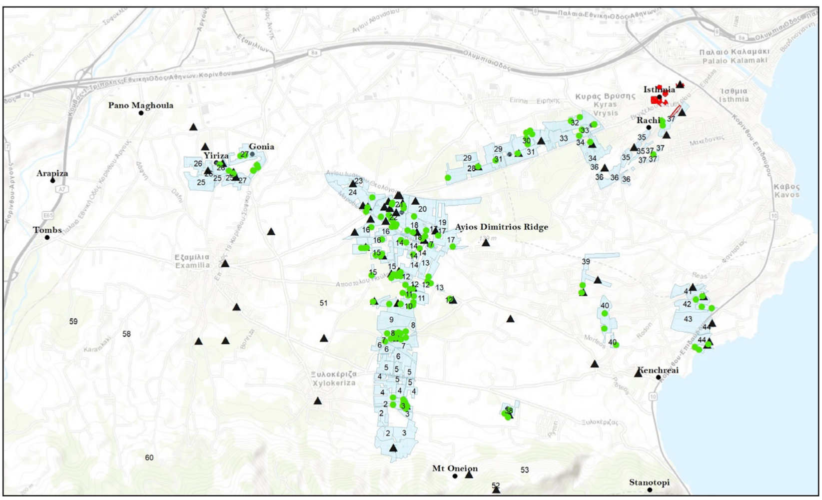


Figure 10.8. Top Decile Units (green circles) on Isthmus based on stratified density. Numbers indicate zones. Triangles show centroids of EKAS sites (LOCAs). Cp. Figure 10.7.

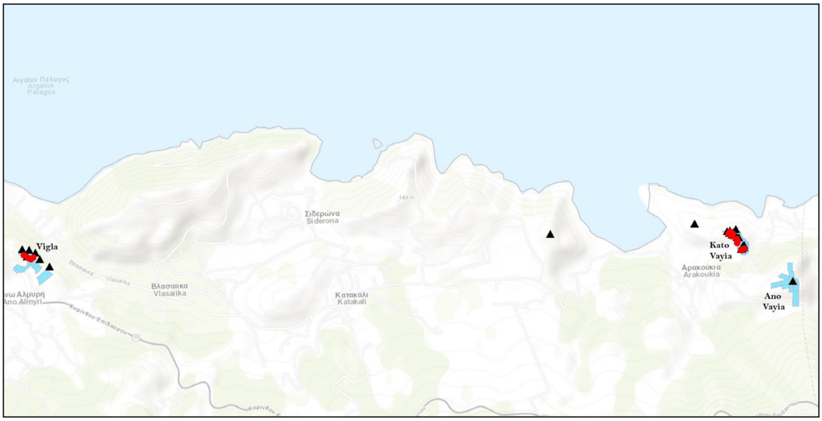


Figure 10.9. Top Decile Units (red circles) at Vigla and Vayia (Z45, Z46, and Z47) in the southern Corinthia based on total density. Triangles show centroids of EKAS sites (LOCAs). Cp. Figure 10.10.

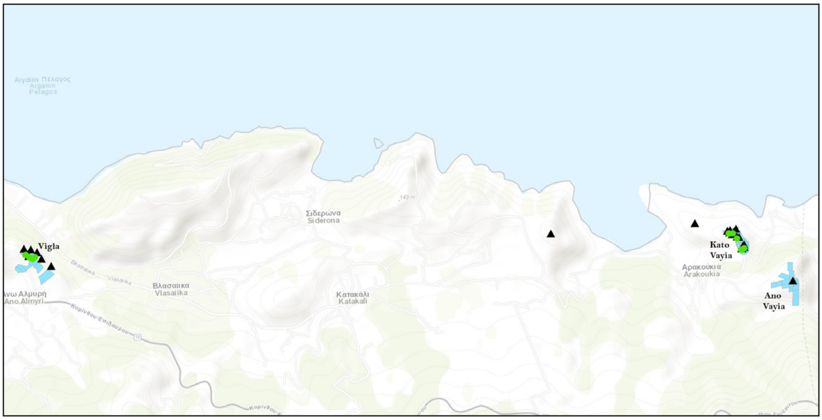


Figure 10.10. Top Decile Units (green circles) at Vigla and Vayia (Z45, Z46, and Z47) in the southern Corinthia based on stratified density. Triangles show centroids of EKAS sites (LOCAs). Cp. Figure 10.9.

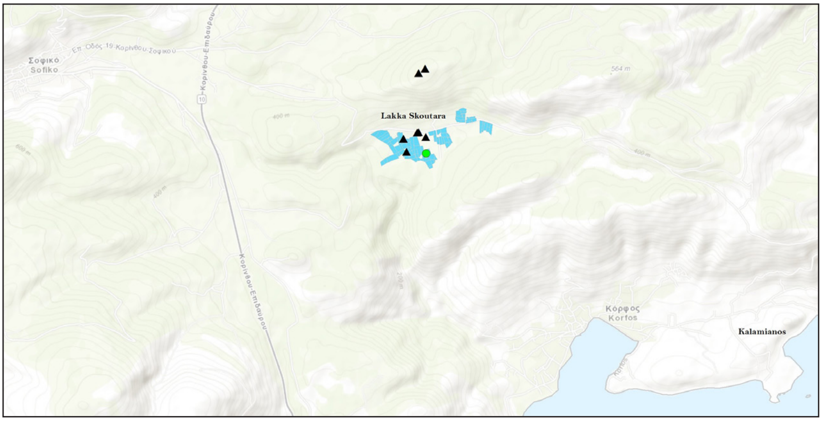


Figure 10.11. Top Decile Units (green circles) at Lakka Skoutara (Z48, Z49, and Z50) in the southern Corinthia based on stratified density. There were no top decile total density units at Lakka Skoutara. Triangles show centroids of EKAS sites (LOCAs).

in this way also shows that top-density units extend across much of the surveyed region, even in zones lacking exceptional densities. *Top decile total density* units are found in 68% of the zones in the eastern Corinthia and *top decile stratified density* units are spread over 74% of the zones of the eastern Corinthia. Half of the 20 zones with the lowest aggregate density, in fact, contain top-density survey units (e.g., Z2, Z13, Z17, Z23, Z25, Z28, Z34, Z39, Z40, Z49).[42] In short, highest-density units are dispersed across a wide area even if there are clear concentrations in certain areas (e.g., Rachi Boska and Kromna).

To this point, I have considered only general patterns of total artifact densities as reflected by the tally counts of pottery, tile, lithics, and other. Other layers of data shed light on the character of distributions across the Isthmus. Tiles, for example, are present in virtually every zone of the eastern Corinthia except for the upper slopes of Mount Oneion (Z1).[43] They are sparser in some zones than others, but I have noted that tiles were likely undercounted in the survey (Section 9.2), and so we do not have a fully accurate index. Nonetheless, their ubiquity points to a continuous environment of numerous buildings in the landscape at least when viewed in long-term perspective. Tiles correlate closely with the densest overall units, an indication that tile concentrations are significant contributors to high densities and that the densest units represent locations of former rural buildings in at least some past moments (Figures 10.7, 10.8, 10.9, and 10.10). Finding tiles in units of

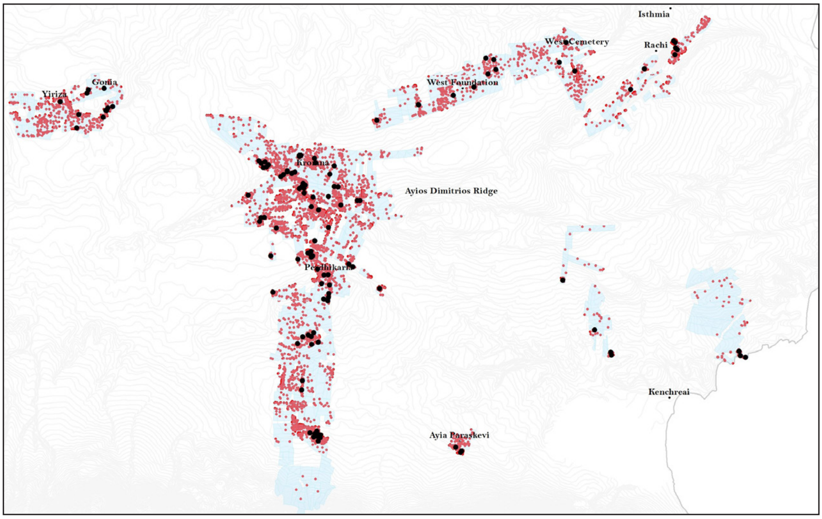


Figure 10.12. Map of EKAS Units showing density of tiles on Isthmus. One red dot = 100 tiles per 10,000 m². Black dots represent top decile total density unit.

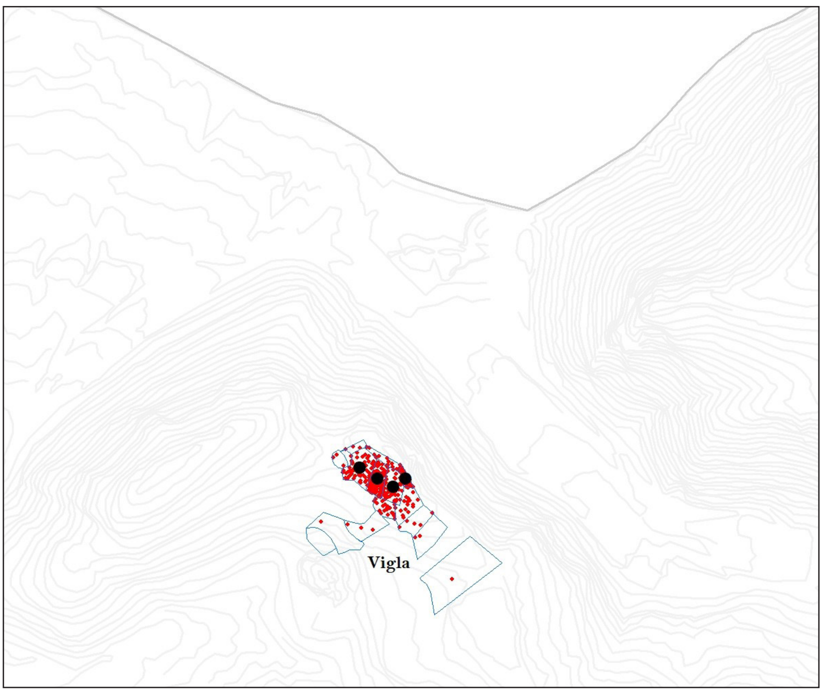


Figure 10.13. Map of EKAS Units showing density of tiles at Vigla (Z45) in the southern Corinthia. One red dot = 100 tiles per 10,000 m². Black dots represent top decile total density unit.

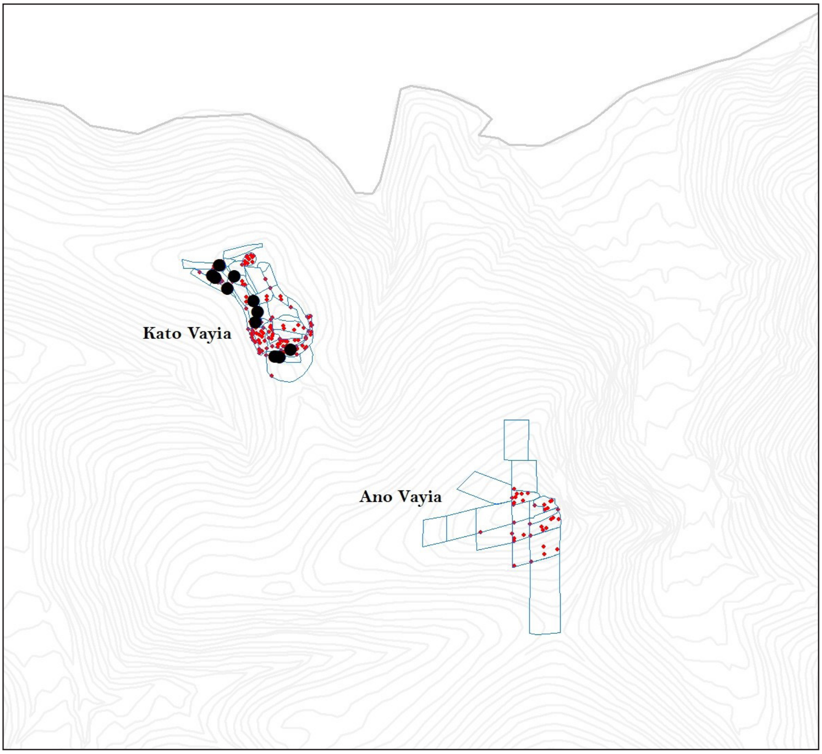


Figure 10.14. Map of EKAS Units showing density of tiles at Vayia (Z46 and Z47) in the southern Corinthia. One red dot = 100 tiles per 10,000 m². Black dots represent top decile total density unit.

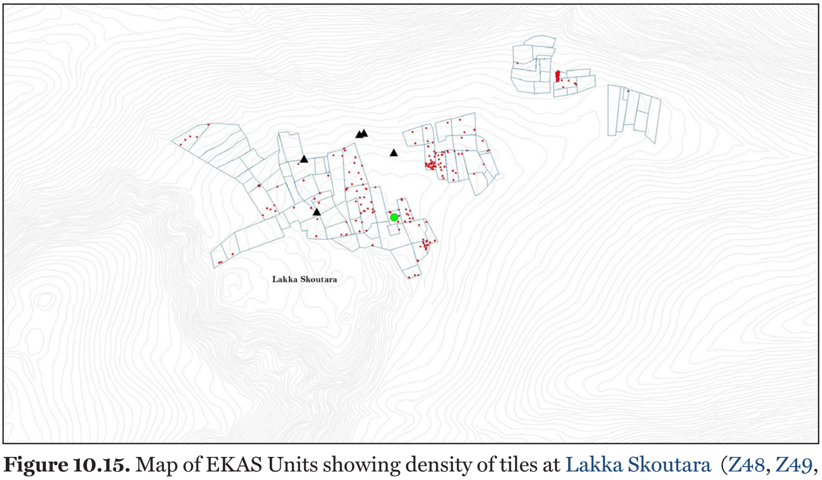


Figure 10.15. Map of EKAS Units showing density of tiles at Lakka Skoutara (Z48, Z49, and Z50) in the southern Corinthia (bottom). One red dot = 100 tiles per 10,000 m². Triangles represent LOCAs, green dot represents top decile stratified density unit.

middling and lower density also suggests the presence of buildings in almost all the territory's zones. Some zones, of course, have unique tile concentrations that point to major building debris, as with those in the modern settlement of Lakka Skoutara in the southeastern Corinthia (Z48, Z49, and Z50).[44]

Pithos fragments are not as abundant as tile, but their ubiquity in the eastern Corinthia is an indicator, like tile, of serious investment in regional agriculture, habitation, and buildings. Pithoi were especially abundant in the zones of Yiriza (Z26) and Gonia (Z27); Boulberi (Z24), Kromna (Z20, Z21, Z22), and Kesimia (Z17, Z18) along the line of the Hellenistic trans-Isthmus wall; the ridge of Rachi Boska (Z11, Z8);[45] the northern part of the lower slopes of Mount Oneion (Z3);[46] the roadside region west of Isthmia (Z31, Z33);[47] and the ancient buildings at Vigla (Z45) and Ano Vayia (Z47).[48] Yet, the presence of pithos fragments in most survey zones indicates long-term investments in the storage of agricultural produce throughout the region.

While tile and pithoi seem to evince some definite correlation with highest-density units, the distribution and density of lithic artifacts, in contrast, do not typically overlap the densest areas in the landscape. In few of the region's densest stratified units do high lithic densities clearly correlate with overall artifact densities. This pattern again shows that some material classes have no clear relationship to the aggregate deposits of objects—deposits that archaeologists often focus on when defining sites—although it is possible that the poor correlation relates in part to the under-identification of lithic objects during survey (Section 9.2). One should not assume that all obsidian bladelets and chert and flint debitage are necessarily prehistoric in date,[49] but it seems likely that the disjunction between patterns of overall artifact densities and lithic densities could disguise a distinction between layers of different periods; further analysis is clearly needed. The strong correlation between lithic objects in zones with strong prehistoric elements—Gonia, Yiriza, Rachi Boska, Vayia, and Vigla (Figures 10.11, 10.12, 10.13, and 10.14)—may suggest prehistoric dates for these objects. LOCAs defined on the basis of lithic artifacts or *Neolithic* objects correlate closely with the highest densities of lithics.[50]

Lastly, I want to consider cut stone architecture, a body of material that does not fit the category of artifact distributions (Figures 10.15 and 10.16). While cut blocks and slabs are found in many territory zones, they are commonest in districts in or near the Examilia Quarries and major fortifications. The zones of Kromna, Kesimia, and Perdikaria, for example, have a clear association with the Examilia Quarries and

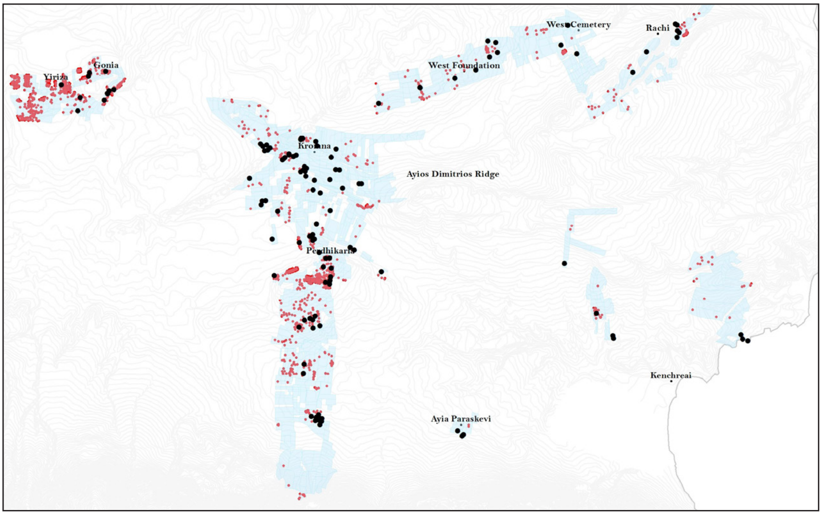


Figure 10.16. Map of EKAS Units showing density of lithic objects on Isthmus. One red dot = 5 lithic artifacts per 10,000 m². Black dots represent top decile total density unit.

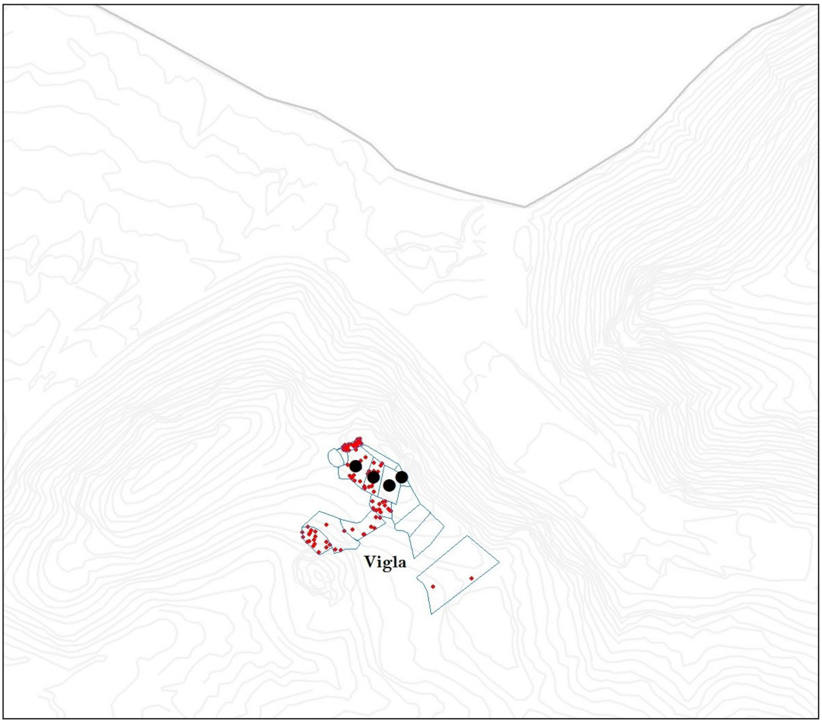


Figure 10.17. Map of EKAS Units showing density of lithic objects at Vigla. One red dot = 5 lithic artifacts per 10,000 m². Black dots represent top decile total density unit.

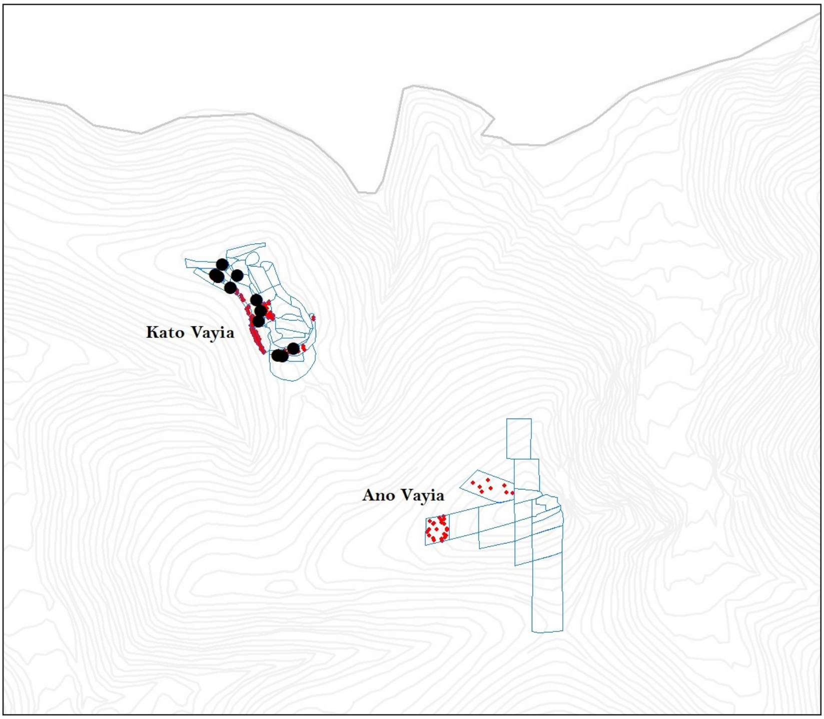


Figure 10.18. Map of EKAS Units showing density of lithic objects at Vayia. One red dot = 5 lithic artifacts per 10,000 m². Black dots represent top decile total density unit.

the dominant landscape feature (the trans-Isthmus wall of Classical–Hellenistic date).[51] Likewise, the stone architecture in Boulberi North (Z23), Yiriza and Gonia (Z25, Z26, Z27), and Kenchreai (Z40) likely originated from the trans-Isthmus fortification that ran through or near these districts or the proximal limestone quarries.[52] Cut stone around Rachi Boska (Z11, Z12) may relate to a Classical-period wall there, while much of the cut stone documented at Vayia (and perhaps Vigla too) in the southern Corinthia is associated with prehistoric cairns or Classical–Hellenistic forts.[53] Cut stone was, of course, occasionally found elsewhere, and may also relate to quarries, built graves, and impressive villas, but its correlation with fortification walls urges further research of the question.

One may analyze other kinds of artifact and feature distributions to fine-tune a picture of land use and settlement in the eastern Corinthia according to a wide range of analytical criteria. Consider that EKAS collected information on some forty different feature classes and hundreds of artifact classes! My primary point has been to show

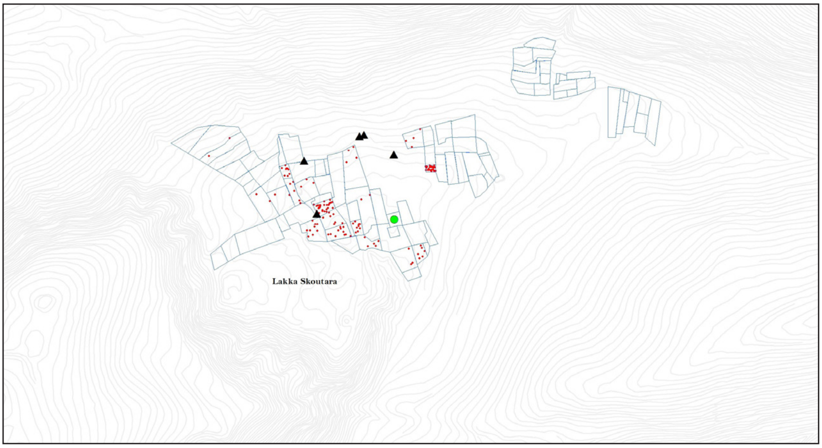


Figure 10.19. Map of EKAS Units showing density of lithic objects at Lakka Skoutara. One red dot = 5 lithic artifacts per 10,000 m². Green dot represents top decile stratified density unit. Triangles mark LOCAs.

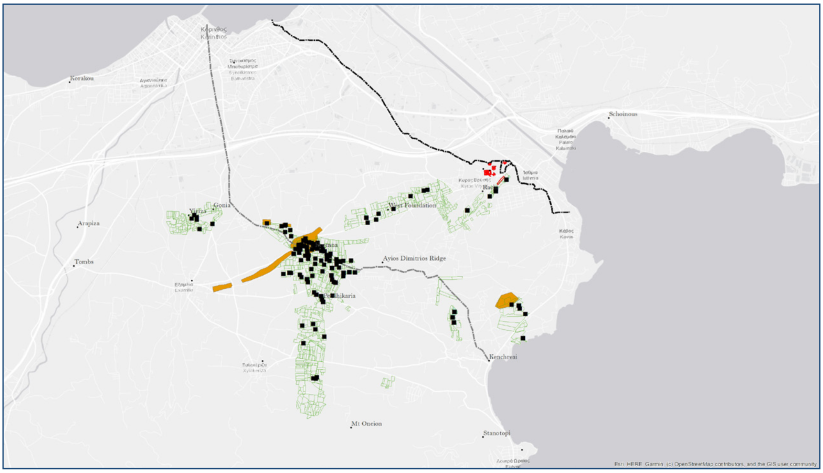


Figure 10.20. Map showing presence of cut stone and monumental architecture on Isthmus against backdrop of survey units. This image shows the reconstructed pathway of the Hellenistic and Late Roman walls across the Isthmus as well as documented limestone quarries (orange).

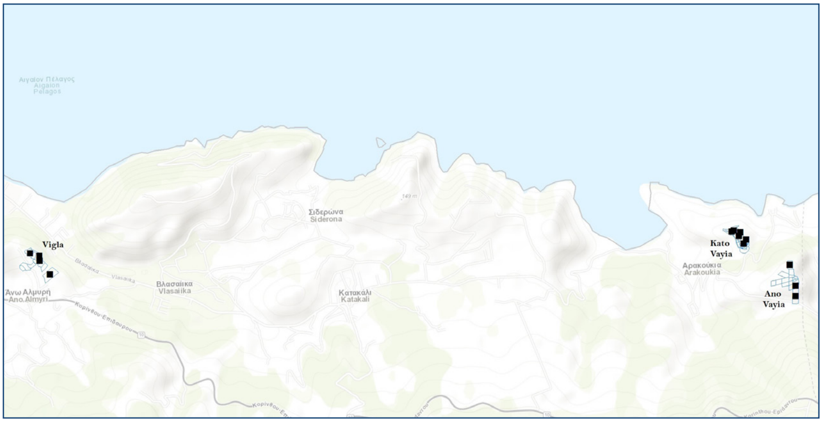


Figure 10.21. Map showing presence of cut stone and monumental architecture at Vigla, Kato Vayia, and Ano Vayia against backdrop of survey units.

some of the ways that one can tinker in analysis of distributions of total density data to identify the districts of the survey region showing most intensive use. Distributional approaches create multiple pathways of analysis and encourage building inferences based on a layered approach. In materially rich environments like the eastern Corinthia, these endless analytical pathways make the creation of archaeological knowledge an iterative and unfinished business.

01100010 01110010 01100101 01100001 01101011

In this chapter, I have defined broad patterns of material in the EKAS survey territory by breaking down different datasets into their core components through a range of approaches and by a sustained comparison of the EKAS region with other surveyed regions. All of these approaches have highlighted the ubiquity and abundance of the landscape's material. The Isthmus especially reveals a rich record of pottery, tile, stone objects, and pithos fragments that point to an array of activity associated with ancient and post-antique buildings in the region, including structures associated with settlement in the exurban zones of the Corinthia. Densities are sustained at high levels across the region: the densest zones and densest discovery units indicate areas of special significance (like Vigla, Rachi Boska, Kromna and Kesimia), but moderate to high density remains are found in most of the examined regions. By comparing the eastern Corinthia with other regions, I have drawn attention to the distributed character of the carpet of artifacts on the Isthmus—artifacts that exist at relatively high densities that approximate, or in some cases exceed, "site" level densities of other regions.

Given the complexity of processes that have created artifact-rich landscapes (Section 9.4), and the continuous nature of the distribution, it is worth noting that we can discount the possibility that the continuous carpet of objects generally is the product of manuring fields around larger settlements such as Kromna, Isthmia, or Kenchreai.[54] While manuring could be responsible for the distribution of lower-density scatters around specific smaller farms or villas, or for certain periods (e.g., Prehistoric: Section 12.2), the distributed pattern of high-density units, and the extensive distribution of investment-heavy material such as tiles, pithoi, and cut stone, argues against manuring generally as the primary phenomenon responsible for the carpet of material in the parts of the eastern Corinthia that we recorded. The carpet, in my view, is more likely caused by a combination of processes that include, among others, iterative settlement at different scales and timeframes, construction activities in the region, historic encampments, processes of abandonment and reuse, commercial exchange, and the random overlays of debris of different periods. More comprehensive work, of course, is clearly necessary to analyze the relationship of low-density and high-density scatters on a period-by-period basis to shed light on the human and natural processes that have generated the record we documented during survey.[55]

This chapter has in fact highlighted the importance of breaking down the artifactual landscape through further analysis. I have pointed out, for example, how the highest-density areas do not consistently correspond to individual layers of distinct material classes. The distributions and densities of pithos fragments, lithic materials, and cut stone, for example, show that layers of object classes do not neatly correspond to a landscape's highest-density units. Even the densest units, however defined, are not perfect equivalents of areas defined as sites (LOCAs) at the time of survey (Ch. 6)—an observation that gives pause to recent arguments to restore the "site" as the end game of survey.[56] This in fact points to the primary value of data-driven distributional approaches in artifact rich environments: they encourage unraveling and reaggregating the landscape and interpreting its history from the multiple perspectives of its distinct, albeit often related, layers.

The analyses offered in this chapter are, if anything, an invitation to further analysis and subsequent interpretation. If we only read the densest 10% of survey units as being the territory's "sites," or content ourselves with defining sites mainly in the process of survey, we miss out on the value of a more textured reading of the landscape.

In this vein, I want to move in the final chapters to the assemblages that make up the continuous carpet of objects. How might we mobilize large datasets with chronological and functional value to characterize the periodic patterning of land use in the region? Here I will present results in a consistent way in terms of the kinds and quantities of artifacts recorded, the distribution of material and hotspots, and the relative variation in artifact density in the different districts of the Corinthia.[57]

Endnotes

1 Flannery 1976, 51.

2 Stewart 2013, 1. Attema et al. 2020.

3 Mean center analysis establishes the notional center, or average point, of all x and y values of the centroids (central points) of all survey units according to the defined criterion (in this case: EKAS periods). Cf. Section 12.1. Near analysis assesses the average distance between two feature classes, in this case, survey units that produced evidence for two different periods.

4 As in the Chapter 9, the focus here will be on the total counts of artifacts rather than the narrower assemblage of material picked up and identified to chronotype classes.

5 https://pleiades.stoa.org/places/570180

6 https://pleiades.stoa.org/places/570317

7 Boeotia (https://pleiades.stoa.org/places/540689), the Argolid (https://pleiades.stoa.org/places/570104), Epirus (https://pleiades.stoa.org/places/530871), and Kythera (https://pleiades.stoa.org/places/570186). LOCA (https://n2t.net/ark:/28722/k2sn0hh26); Gregory 1980, 1983; Runnels, Pullen, and Langdon 1995; Coroneos et al. 2002; Tartaron 2003.

8 https://pleiades.stoa.org/places/570532

9 https://n2t.net/ark:/28722/k2df72g4h

10 https://doi.org/10.6078/M7DR2SM1

11 This density figure is an estimation of the number of objects per half-hectare based on a projection of sustained densities. Typically, however, densities are based on a smaller spatial area (<2000 m^2 on average).

12 Meyer 2022.

13 Alcock, Cherry, and Davis 1994, 138, suggested that a number of archaeological surveys in Greece had used density values of "about thirty to fifty sherds per 100 sq. m" (i.e., 3,000–5,000 artifacts per hectare) to define archaeological sites in different regions. More research is needed to define comparable density figures between regions in order to account for factors such as: 1) the method of survey and counting (e.g., pedestrian survey vs. more intensive hoovering), 2) the character of surface visibility, and 3) the area of a unit walked.

14 Larnaka (https://pleiades.stoa.org/places/707556); Pyla-*Koutsopetria* Archaeological Project (https://opencontext.org/projects/3F6DCD13-A476-488E-ED10-47D25513FCB2)

15 The data is available for download in Open Context in the table titled Main Survey Unit Descriptions (https://n2t.net/ark:/28722/k2z89g224). Pyla-*Koutsopetria* (https://pleiades.stoa.org/places/707550).

16 Thespiai (https://pleiades.stoa.org/places/541141)

17 Bintliff et al. 2017, 55.

18 Gallimore et al. 2017. The data in this paragraph is based on WARP's survey data tables: https://doi.org/10.6078/M7JS9NH8; Inachos River (https://pleiades.stoa.org/places/570313), Argos (https://pleiades.stoa.org/places/570106).

19 https://doi.org/10.6078/M7JS9NH8

20 https://doi.org/10.6078/M7JS9NH8
21 On Corinth's peri-urban zones in the Roman era, see Pettegrew 2015.
22 Isthmia (https://pleiades.stoa.org/places/570316), Kenchreai (https://pleiades.stoa.org/places/570347), Gonia (https://www.geonames.org/12514037/gonia.html), and Kromna (https://www.geonames.org/12514059/kromna.html).
23 Z1 (https://n2t.net/ark:/28722/k2708h020), Z2 (https://n2t.net/ark:/28722/k2qz2nt5k), Z36 (https://n2t.net/ark:/28722/k2s473h4p), and Z41 (https://n2t.net/ark:/28722/k2fj2wq22). The weighted visibility of Z1 and Z2 was, respectively, 25% and 18%, which was the lowest in the entire survey area. Z41 also had poor visibility (42%), the sixth worst in the survey region. Of the lowest-density zones, only Z36 had decent visibility (62%).
24 Vigla (https://www.geonames.org/12514008/vigla.html) and Kato Vayia (https://www.geonames.org/12514008/vigla.html)
25 Perdikaria (https://www.geonames.org/12514081/perdikaria.html)
26 Ay. Paraskevi (https://www.geonames.org/9408784/ayia-paraskevi.html)
27 Rachi Boska (https://www.geonames.org/12514080/rachi-boska.html)
28 Isthmia Hellenistic Stadium (https://www.geonames.org/12514044/hellenistic-stadium-at-isthmia.html)
29 West Foundation (https://www.geonames.org/12514056/west-foundation.html), Z30 (https://n2t.net/ark:/28722/k23b6gk34), and Z31 (https://n2t.net/ark:/28722/k2vx0sd6g), Examilia Quarries (https://www.geonames.org/12514055/examilia-quarries.html), Z22 (https://n2t.net/ark:/28722/k2zp4gb00)
30 Panorama (https://www.geonames.org/9408787/panorama-xylokerizis.html)
31 Z3 (https://n2t.net/ark:/28722/k2hd8840j)
32 Z3 (https://n2t.net/ark:/28722/k2hd8840j), Marougka (https://www.geonames.org/12514084/marougka.html), Z5 (https://n2t.net/ark:/28722/k2p560t0k)
33 Z3 (https://n2t.net/ark:/28722/k2hd8840j); Kromna (https://www.geonames.org/12514059/kromna.html), Z21 (https://n2t.net/ark:/28722/k26405g63)
34 Z28 (https://n2t.net/ark:/28722/k2rf65s12), Z29 (https://n2t.net/ark:/28722/k2rf65s12)
35 Z13 (https://n2t.net/ark:/28722/k2d22bv61), Z17 (https://n2t.net/ark:/28722/k2ng53319), Z19 (https://n2t.net/ark:/28722/k21g1455f), Z20 (https://n2t.net/ark:/28722/k2sx6qm41), Z39 (https://n2t.net/ark:/28722/k2dj5vt1b), Z40 (https://n2t.net/ark:/28722/k2p279f0q), Z41 (https://n2t.net/ark:/28722/k2fj2wq22)
36 Bintliff et al. 2017, 55.
37 All of the top decile total density units have artifact densities—uncorrected for visibility—in excess of 5,476 artifacts per hectare, which is well above the density figure noted above (note 2) in Alcock, Cherry, and Davis 1994, i.e., 3,000–5,000 artifacts per hectare. Nearly 80% of the top decile stratified density units have artifact densities above 3,000 artifacts per hectare uncorrected for visibility; when corrected for visibility, all stratified units have densities above 3,680 artifacts per hectare and 92% have corrected densities above 5,400 artifacts per hectare.

38 LOCA (https://n2t.net/ark:/28722/k2sn0hh26). Highest density units directly overlap with LOCA areas in 51% of top decile stratified units and 61% of top decile total density units.
39 For a description of how average nearest neighbor analysis works, see this page: https://pro.arcgis.com/en/pro-app/latest/tool-reference/spatial-statistics/h-how-average-nearest-neighbor-distance-spatial-st.htm
40 LOCA (https://n2t.net/ark:/28722/k2sn0hh26)
41 Z3 (https://n2t.net/ark:/28722/k2hd8840j); Z8 (https://n2t.net/ark:/28722/k29318549), Z10 (https://n2t.net/ark:/28722/k2v12fw9v), Z12 (https://n2t.net/ark:/28722/k2bk1t097)
42 Z2 (https://n2t.net/ark:/28722/k2qz2nt5k), Z13 (https://n2t.net/ark:/28722/k2d22bv61), Z17 (https://n2t.net/ark:/28722/k2ng53319), Z23 (https://n2t.net/ark:/28722/k2r502m21), Z25 (https://n2t.net/ark:/28722/k2417d92t), Z28 (https://n2t.net/ark:/28722/k2rf65s12), Z34 (https://n2t.net/ark:/28722/k2mc9bs6r), Z39 (https://n2t.net/ark:/28722/k2dj5vt1b), Z40 (https://n2t.net/ark:/28722/k2p279f0q), Z49 (https://n2t.net/ark:/28722/k2fx7q81c)
43 Z1 (https://n2t.net/ark:/28722/k2708h020)
44 Z48 (https://n2t.net/ark:/28722/k2794m51k), Z49 (https://n2t.net/ark:/28722/k2fx7q81c), and Z50 (https://n2t.net/ark:/28722/k2000kb04)
45 Yiriza (https://www.geonames.org/12514036/yiriza.html); Z26 (https://n2t.net/ark:/28722/k2wh30r4s) and Gonia (Z27: [https://n2t.net/ark:/28722/k26d68n54]); Boulberi (https://www.geonames.org/12514058/boulberi.html; Z24 (https://n2t.net/ark:/28722/k2hm5nw3b), Kromna (Z20: https://n2t.net/ark:/28722/k2sx6qm41, Z21: https://n2t.net/ark:/28722/k26405g63, Z22: https://n2t.net/ark:/28722/k2zp4gb00), and Kesimia (https://www.geonames.org/12514083/kesimia.html; Z17: https://n2t.net/ark:/28722/k2ng53319, Z18: https://n2t.net/ark:/28722/k2dz0pc44) along the line of the Hellenistic trans-Isthmus wall; the ridge of Rachi Boska (Z11: https://n2t.net/ark:/28722/k2mg8262j, Z8: https://n2t.net/ark:/28722/k29318549)
46 Z3 (https://n2t.net/ark:/28722/k2hd8840j)
47 Z31 (https://n2t.net/ark:/28722/k2vx0sd6g), Z33 (https://n2t.net/ark:/28722/k2z03jk8j)
48 Z45 (https://n2t.net/ark:/28722/k2697k80v), Z47 (https://n2t.net/ark:/28722/k2zs35q1b)
49 Kardulias 2009.
50 LOCA (https://n2t.net/ark:/28722/k2sn0hh26), Neolithic (https://n2t.net/ark:/28722/k2w38662w)
51 Trans-isthmus wall (https://www.geonames.org/12514074/trans-isthmus-wall.html). Cf. Wiseman 1963 and 1978, 60–61, with recent discussion in Tartaron et al. 2006, 494–513 and Pettegrew 2016, 82–87.
52 Z23 (https://n2t.net/ark:/28722/k2r502m21), Z25 (https://n2t.net/ark:/28722/k2417d92t), Z26 (https://n2t.net/ark:/28722/k2wh30r4s), Z27 (https://n2t.net/ark:/28722/k26d68n54), Z40 (https://n2t.net/ark:/28722/k2p279f0q)

53 Z11 (https://n2t.net/ark:/28722/k2mg8262j), Z12 (https://n2t.net/ark:/28722/k2bk1t097), Classical (https://n2t.net/ark:/28722/k2h13fj66), Hellenistic (https://n2t.net/ark:/28722/k2v98k29s); Tartaron, Rothaus, and Pullen 2003; Tartaron, Pullen, and Noller 2006; Caraher, Pettegrew, and James 2010.

54 For discussion and debate on manuring and the evidence of field survey in a Greek context, see Bintliff and Snodgrass 1988; Alcock, Cherry, and Davis 1994; Pettegrew 2001, 2002; Osborne 2002; Foxhall 2002; Bintliff et al. 2002; Forbes 2013; Attema et al. 2020, 13–19; Cloke 2021; and especially Bintliff 2023, with references.

55 See, for example: Bintliff, Howard, and Snodgrass 2007; Cloke 2016 and 2021.

56 Meyer 2022. Cf. Section 3.3.

57 https://pleiades.stoa.org/places/570180

Chapter 11
Artifact Assemblages

No issue is more important for drawing historical interpretations from survey data than that of discerning time. Chronology is the essential element of archaeological analysis that allows surveyors to reconstruct a landscape's history from the jumbled overlays of strata-less surface deposits. Whether discerned in the architectural style of building remains, or particular artifact classes, the identification and definition of time opens the door to seeing a region's past rhythms of continuity and change. Discussions of "source criticism" in critical survey literature have frequently centered around the problems and process of measuring and extrapolating time from evidence.[1]

In a site-based approach to survey, archaeologists often define chronology in artifact clusters by identifying uncommon time-sensitive "diagnostics"—the rim of an Italian sigillata of first century date, for example—and attributing its temporal value to the entire scatter. But grab sampling in this manner is unsatisfying because it ignores the majority of objects, leading to misimpressions of change in the countryside based on a mere handful of type fossils.[2] The chronotype system adopted by EKAS is imperfect in its own ways but presents a more comprehensive approach to breaking down a fuller assemblage to the atomic units of individual artifacts, reassembling them in different ways, and reading the landscape with a sensitivity to its distinct layers (Section 5.2.2).

In this chapter, I turn from the general forest of artifact assemblages—the classes of pottery, tile, lithic, and non-ceramic objects counted in the course of survey—to the layered chronology of woods, copses, and trees. My approach here will be to characterize the temporal patterns of EKAS's artifact assemblages through tabulation and analysis of the attributes of the chronotypes sampled during survey, that is, the unique objects picked up, bagged, and read by teams of ceramicists. This chronotype-level data, which was stored in the project's *Finds Data Table* and may be browsed online through the hyperlinks of this chapter, creates a finer-grade reading of the landscape in terms of the long epochs that created it. I begin by describing the overall character of identified objects in the survey, and then outline the assemblages and relative visibility of various *narrow chronotype periods* and five broad *analytical periods*: Prehistoric, Protogeometric–Hellenistic, Roman, Medieval, and Modern.[3] This discussion will highlight not only the distinct general patterns of chronological data but also the differential visibility of periods that form an important element in critical fine-grained analysis and interpretation of data (Ch. 13 and 14).[4]

11.1. EKAS Assemblages: An Overview

The EKAS processing team recorded in total 54,372 objects through all methods of survey and collection. This assemblage marks just 37% of the 146,599 objects counted during survey through standard methods (Section 5.2.1)—yet another reduction in an already limited sampling of the landscape (Section 9.1). The degree to which we can speak about chronology in the landscape at all from archaeological survey depends on the identification of recognizable types of an even smaller corpus of precisely datable objects.

The chronotype system, we have seen (Section 5.2.2), engages with the problem of chronological imprecision by assigning all artifacts to a chronotype class with defined chronological properties (Section 5.2.2). In EKAS, the project made use of 65 separate chronotype periods ranging from the very narrowly dated to the very broadly dated. Analysts used narrower periods for the most precisely identified types and broader periods for the most generic artifacts. As you might imagine, the vast majority of objects belonged to the second class. But the chronotype system altogether was designed to widen the sample of surface scatters to objects that might not normally be picked up in survey, yet which might still betray some chronological aspect.

In EKAS, it is helpful to think of the assemblage of objects as representing three very different kinds of chronological resolution. The narrowest class—what I call *narrow periods*—includes 29 chronotype periods with narrow timespans, which, in the context of the surface record, number ca. 600 years or less! A middling class of 21 *broad periods* have timeframes ranging from 700 to 2,000 years, and include longer prehistoric and historical ages (e.g., *Protogeometric–Hellenistic*, *Roman*) and transitional ages (e.g., *Final Neolithic–Early Helladic I*).[5]

A third class of fifteen "inclusive" chronotype periods—what I call *eras*—designate the broadest period groupings that were ca. 2,000–10,000 years long. These include artifacts that are so poorly dated that they can only be assigned to periods such as "*Ancient*" (6700 BC–AD 700), "*Late Helladic–Modern Present*" (1550 BC–AD 2000), "*Prehistoric*" (6700–1050 BC), or the generic "*Ceramic Age*" (6700 BC–AD 2000).[6]

Tabulation of EKAS assemblages according to these 3 classes confirms what one might expect from a survey assemblage: the vast majority of finds could be dated only to centuries, or even millennia. About 20% of objects were dated to *narrow periods*, 11% to *broad periods*, and 69% to *eras*.[7] The vast majority of artifacts (80%), in other words, had chronological attributes spanning more than 600 years, and 71% had ranges of 1,000 years or more. Few objects could be dated precisely: less than 1% of objects date to a specific century, only 5% to a span of 200 years, 6% to 300 years, and 10% to 400 years. To put this in slightly different terms, the typical artifact collected by EKAS teams could be dated no more precisely than 3,672 years,[8] and the average duration for EKAS' chronological periods spanned 7 centuries.[9] This degree of chronological imprecision is consistent with estimates in other regional projects.[10]

Chronological resolution in survey generally improves, of course, as archaeologists incorporate typologies of international ceramic wares of different periods (e.g., Late Roman fine wares and amphoras) and develop typologies of local or regional wares in different fabrics.[11] In this respect, excavation, carried out alongside survey, can make an enormous difference in learning to identify vestigial remains to narrower periods. Systematic studies of ceramic classes or periods such as kitchen wares or post-antique pottery can also lead to great improvements.[12] Since identifying different periods in survey is always relative to the local situation and staff specialization, the involvement of period specialists in a project should improve chronological resolution. Indeed, one particular problem that EKAS encountered in respect to dating assemblages was the non-collection clause of our permit, which reduced the sample brought back to Isthmia and limited the range of potential "glances" from specialists (Section 3.2).

Future refinements are one thing, but how do we draw chronological assessments now from legacy survey datasets like EKAS? The first and most essential thing, I believe, is to approach chronological reconstruction critically in the recognition of gaps in our knowledge and the risks of extrapolating from tiny samples. Estimating the chronological attributes of an assemblage provides at best an approximation of

Narrow Periods	Period	Start	End	Duration	Quantity
Roman, Late	AD250-700	250	700	450	2191
Classical-Hellenistic	500-31BC	-500	-31	469	2185
Archaic-Classical	700-323BC	-700	-323	377	2081
Modern	AD1800-2000	1800	2000	200	953
Late Bronze Age	1680-1050BC	-1680	-1050	630	829
Classical	500-323BC	-500	-323	177	687
Modern, Present	AD1960-2000	1960	2000	40	500
Roman, Early	31BC-AD250	-31	250	281	394
Modern, Early	AD1800-1960	1800	1960	160	301
Early Helladic II	2650-2200BC	-2650	-2200	450	280
Archaic	700-500BC	-700	-500	200	198
Middle Bronze Age	2050-1680BC	-2050	-1680	370	108
Early Helladic I	3100-2650BC	-3100	-2650	450	84
Geometric-Archaic	900-500BC	-900	-500	400	72
Medieval, Late	AD1200-1537	1200	1537	337	72
Roman, Middle	AD150-400	150	400	250	70
Late Helladic IIIA-B	1420-1190BC	-1420	-1190	230	54
Geometric	900-700BC	-900	-700	200	45
Hellenistic	323-31BC	-323	-31	292	40
Middle Helladic-Late Helladic I	2050-1600BC	-2050	-1600	450	29
Medieval, Early	AD700-1200	700	1200	500	25
Medieval, Ottoman/Venetian	AD1537-1800	1537	1800	263	24
Hellenistic-Early Roman	323BC-AD250	-323	250	573	23
Late Helladic III	1420-1050BC	-1420	-1050	370	16
Late Helladic I-IIA	1550-1425BC	-1550	-1425	125	14
Protogeometric-Archaic	1050-500BC	-1050	-500	550	11
Middle Neolithic	5800-5400BC	-5800	-5400	400	10
Late Helladic IIIA	1420-1320BC	-1420	-1320	100	5
Late Helladic IIIB	1320-1190BC	-1320	-1190	130	3
Late Helladic IIIC-S	1200-1050BC	-1190	-1050	140	3
Protogeometric	1050-900BC	-1050	-900	150	1

Table 11.1. Quantity of Artifacts According to Narrow Periods (duration less than ca. 600 years) in EKAS sorted from most common to rarest.

the dominant patterns of deposition. We must think especially about the processes that led to relative quantities of material in the territory (cf. Section 9.4). In the case of type fossils of different ages, we have to recognize that complex historical factors like supply and demand, past circulation of global products, durability of physical materials, and recognizability of objects to surveyors and analysts have all played a part in the relative quantities of objects of different periods in survey datasets.[13] Needless to say, we have to rule out the old problematic approach of equating pots to people or seeing the relative densities of different periods as a simple index of past populations. Our sample and our knowledge do not allow such wild extrapolations. Period densities represent at best the intensity of depositional processes.

One way of engaging with the problem of limited sample size, of course, is to widen the chronological net and examine data according to broader thresholds of time. While it's possible to study the eastern Corinthia by mapping mainly the narrowest type fossils, as I have done elsewhere,[14] it comes with the risk of saying too much from too little. Like the rule of averaging (Sections 9.2 and 9.4), widening the filter reduces the distorting effects of small sample size while also, of course, reducing resolution. On the positive side, a broader filter introduces more data for play: in EKAS, the sample of objects dated to *narrow* and *broad periods* is collectively robust (n=17,027). And the analyst willing to explore aoristic analysis and other techniques for parsing time may reclaim time from the entire assemblage.[15]

In this chapter and in Chapter 12, I want to model the use of *analytical periods* (cf. Table 11.2 and Table 11.3) that I've defined to correspond to traditional historical ages and that measure time at the 3 scales noted above.[16] These 5 analytical periods—Prehistoric, Protogeometric–Hellenistic, Roman, Medieval, and Modern—range from only 200 years (in the case of the Modern) to nearly 6,000 (in the case of the Prehistoric) and incorporate *narrow* and *broad* chronotype periods.[17] The Prehistoric Period, for example, assembles over 2,000 artifacts deposited at some time between 6700 and 1050 BC, and includes chronotype periods as broad as *Neolithic* (6700–3100 BC) and as narrow as *Late Helladic IIIA* (1420–1320 BC).[18] The broad Protogeometric–Hellenistic period, associated with the time when Corinth first emerged and existed as a Greek polis until Roman recolonization, numbers nearly 7,000 objects.[19] Another 6,000 artifacts can be dated to the broad Roman period.[20] A tiny amount (>300) belong to the long

Analytical Periods	Period-Dates	Quantity
Prehistoric	6700-1050 BC	2282
Protogeometric-Hellenistic	1050-31 BC	6702
Roman	31 BC-AD 700	5846
Medieval	AD 700-1800	322
Modern	AD 1800-2000	1754

Table 11.2. Quantity of Artifacts According to Analytical Periods in EKAS.

Medieval period.[21] And almost 2,000 objects date to the Modern past. Collectively these *analytical periods* comprise 32% of the total count of artifacts read in EKAS.

This larger sample of EKAS material has value in forming impressions of habitation and investment in the eastern Corinthia across broad historical periods. A critical quantification and analysis of data according to fabric classes and extant parts, moreover, sheds light on the relative visibility of different periods.[22] This can inform any story we tell of the survey region's changing land use through time. Coarse and medium coarse wares, for example, should generally be more frequent than fine wares and cooking ware, while body sherds should be the most dominant class among the extant parts. Clearly the percentages of fabric class and extant part depend on the unique character of the pottery circulating locally in individual periods as well as the contexts of deposition; cemeteries and sanctuaries, for example, may generate a greater signature of fine wares than domestic contexts. While more research is needed to predict what one might expect for the surface assemblages of various periods, I believe a comparison of extant parts and fabric classes with one another and the EKAS assemblage as a whole draws attention to gaps in evidence and identification, and the differential visibility of periods in the landscape.[23] Recognition of an assemblage's varying levels of diagnosticity helps to unlock the history of the landscape over time.

11.2. Prehistoric Assemblages

The Prehistoric period in the Eastern Korinthia Survey yielded a substantial corpus of material that merits further study (Table 11.4).[24] Overall, 1,796 prehistoric objects were collected through standard methods (and 2,282 artifacts overall, including non-standard methods),[25] the third most among analytical periods in overall quantity but the second lowest for average number of artifacts per year (dividing the

Period	Total (Count)	Standard (Count)	Artifacts / Year	Standard (%)	LOCAs (%)	Exper. (%)	Grabs (%)	Extens. (%)
Prehistoric	2282	1796	0.3	79%	17%	2%	2%	0.1%
Protogeometric-Hellenistic	6702	4046	4.0	60%	30%	6%	3%	1%
Roman	5846	4219	5.8	72%	11%	14%	2%	1%
Medieval	322	265	0.2	82%	9%	5%	3%	1%
Modern	1754	1506	7.5	86%	2%	8%	2%	3%

Table 11.3. Artifacts by Broad Analytical Periods and Collection Method. Artifacts per year = number of artifacts counted through standard methods divided by the duration of the period.

Period	Period-Dates	Start	End	Duration	Quantity
Prehistoric Periods					
Prehistoric	6700-1050BC	-6700	-1050	5650	211
Neolithic	6700-3100BC	-6700	-3100	3600	24
Early Neolithic	6700-5800BC	-6700	-5800	900	2
Middle Neolithic	5800-5400BC	-5800	-5400	400	10
Late Neolithic	5400-4700BC	-5400	-4700	700	1
Final Neolithic	4700-3100BC	-4700	-3100	1600	24
Final Neolithic-Early Helladic I	4000-2650BC	-4000	-2650	1350	36
Bronze Age	3100-1050BC	-3100	-1050	2050	288
Early Bronze Age	3100-2050BC	-3100	-2050	1050	173
Early Helladic I	3100-2650BC	-3100	-2650	450	84
Early Helladic I-II	3100-2200BC	-3100	-2200	900	46
Early Helladic II	2650-2200BC	-2650	-2200	450	280
Early Bronze Age-Middle Bronze Age	3100-1650BC	-3100	-1650	1450	11
Middle Bronze Age	2050-1680BC	-2050	-1680	370	108
Middle Helladic-Late Helladic	2050-1050BC	-2050	-1050	1000	31
Middle Helladic-Late Helladic I	2050-1600BC	-2050	-1600	450	29
Late Bronze Age	1680-1050BC	-1680	-1050	630	829
Late Helladic I-IIA	1680-1480BC	-1680	-1480	200	14
Late Helladic III	1420-1050BC	-1420	-1050	370	16
Late Helladic IIIA	1420-1320BC	-1420	-1320	100	5
Late Helladic IIIA-B	1420-1190BC	-1420	-1190	230	54
Late Helladic IIIB	1320-1190BC	-1320	-1190	130	3
Late Helladic IIIC-S	1200-1050BC	-1190	-1050	140	3
Prehistoric Analytical Period					2282
Transitional or Overlapping Periods					
Late Bronze Age-Classical	1680-323BC	-1680	-323	1357	61

Table 11.4. Material of broad Prehistoric Date and Transitional or Overlapping Periods, listed by Chronotype Periods.

quantity of objects by duration of period). About 79% of the objects were collected through standard chronotype survey, but LOCA investigations also generated a significant share of the finds (17%). EKAS artifact analysts drew 260 prehistoric artifacts (11% of total) and photographed 166 (7%), images that are accessible today via Open Context. Some 178 artifacts (8%) were collected and brought to Isthmia for storage and study.

The artifacts lumped into the Prehistoric analytical period include 12 *narrow chronotype periods* and 12 *broad* or overlapping periods that span from as little as a century to as much as several thousand years (*Prehistoric* and *Neolithic*).[26] Most of this material dates to the various chronotype periods of the Late Bronze Age (collectively 40% of prehistoric remains) or Early Bronze Age (26% in total); the chronotype period, *Early Helladic II*, by itself comprises 12%. The various chronotype periods of the Neolithic age (4%) and the *Middle Bronze Age* (5%) period are significantly less common,[27] with about 100 identified objects dating to the chronotype periods of these ages. Several hundred objects date to broader overlapping or transitional chronotype periods such as the generic *Prehistoric* (9%), *Bronze Age* (13%), and *Late Bronze Age–Classical*.[28]

Almost all of the Prehistoric objects are pottery (99.4%).[29] The 14 non-pottery objects include terracotta figurines of the Late Bronze Age, an *Early Bronze Age* stone leg of a mortar (1724000019),[30] and stone points identified as prehistoric (e.g., 0620000017).[31] The substantial assemblage of over 1,000 lithic objects (chert and obsidian blades, flakes, and cores) and ground stone tools were dated at the time of survey to vast chronotype eras (e.g., *Ceramic Age*) or overlap periods (*Prehistoric–Classical*), but many undoubtedly date to prehistoric periods (cf. Section 10.3).[32] It would be valuable for a specialist in lithics to restudy this entire collection in a more systematic way by considering attributes such as blade thickness, and by assessing the spatial correlation of lithics to ceramic materials through GIS.[33]

The prehistoric assemblage is diverse: its 94 separate chronotypes represent 15% of total chronotype count for survey. The 15 most common chronotypes consist of examples from a range of prehistoric periods including *Final Neolithic–Early Helladic I*, *Early Bronze Age*, *Early Helladic I*, *Early Helladic II*, *Middle Bronze Age*, and wares of the *Late Bronze Age*.[34] Late Helladic fine ware (both painted and plain varieties) are the most common chronotypes, representing nearly a quarter of the Prehistoric chronotype count; medium coarse wares of various chronotype periods (*Prehistoric*, *Bronze Age*, *Early Bronze Age*,

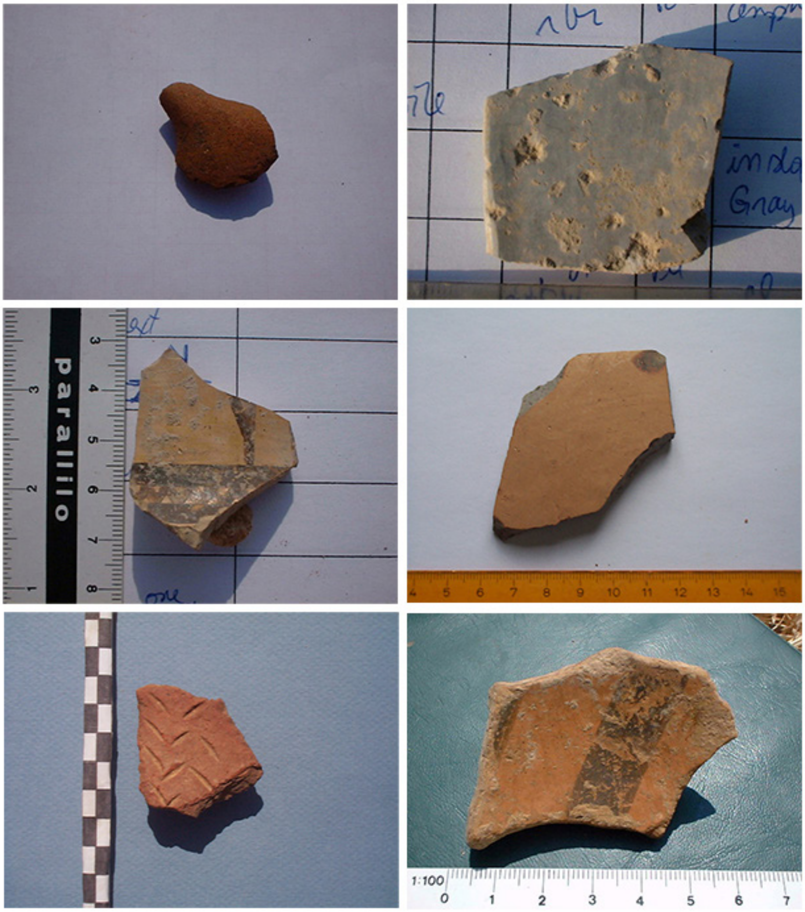


Figure 11.1. Artifacts of various chronotype periods dating from Neolithic to Early Helladic times analyzed in EKAS. Top: 0070000019 and 0626000055. Middle: 0630000012 and 1760000008. Bottom: 3018000503 and 9001093007. Photos from EKAS Archive.

Figure 11.2. Artifacts of various Bronze Age chonotype periods analyzed in EKAS. Top: 0109000012 and 0112000021. Middle: 0625000030 and 0626000059. Bottom: 1033000013 and 1746000034. Photos from EKAS Archive.

Figure 11.3. Artifacts of *Prehistoric* and *Bronze Age* chronotype periods analyzed in EKAS. Top: 0043000006 and 0620000017. Middle: 0622000021 and 0626000035. Bottom: 9003009501 and 9004025304. Photos from EKAS Archive.

Material	Fabric Group	Prehistoric Totals	Prehistoric %	ALLFinds
Pottery	Coarse & Medium Coarse	1245	54.9%	*56.9%*
Pottery	Fine & Semi-Fine	764	33.7%	*12.2%*
Pottery	Cooking	167	7.4%	*9.3%*
Pottery	Tile	1	0.04%	*17.5%*
Pottery	Pithos	91	4.0%	*3.7%*
Pottery	Unknown	0	0.0%	*0.3%*
		2268	100.0%	*100.0%*

Table 11.5. Fabric Groups for Prehistoric Analytical Period compared with objects of All Periods.

Extant-Part	Prehistoric Totals	Prehistoric %	ALLFinds
Rim	396	17.6%	*10.1%*
Base	259	11.4%	*4.2%*
Body	1384	61.1%	*76.1%*
Handle	225	9.9%	*9.6%*
	2264	100.0%	*100.0%*

Table 11.6. Extant Part for Pottery of Prehistoric Analytical Period compared with objects of All Periods (excluding tile).

Late Bronze Age, *Early Helladic II*) are also common (5–8% of total assemblage each).[35] While the 10 most common prehistoric chronotypes represent 68% of the total count and the top 15 represent 76%, a wide range of chronotypes (including coarse ware jugs and hydria; cooking ware forms; pithoi; tile; and fine ware bowls, sauceboats, and kylixes) were identified in small numbers.

When we compare fabric groups and extant parts of Prehistoric pottery with those of the entire EKAS assemblage,[36] we find broad similarities that suggest that material was successfully identified to these periods in predictable patterns (Table 11.5 and Table 11.6). The proportion of coarse wares and medium coarse wares (55%), cooking wares (7%), and pithoi (4%) are comparable to the assemblage as a whole (57%, 9%, and 4%, respectively) although fine ware and semi-fine ware (34% of all prehistoric pottery) may make up a greater than expected share of the Prehistoric assemblage.[37] The relative percentages of ceramic extant parts are also comparable to the survey assemblage as a whole, but Prehistoric rims are probably too common (18% of prehistoric pottery) and body sherds underidentified (only 61% of prehistoric

Fabric Group	NEO	EBA	MBA	LBA	ALLFinds
Coarse and Medium Coarse	80.3%	80.6%	93.5%	22.7%	*73.8%*
Fine and Semi-Fine	19.7%	12.9%	5.6%	70.3%	*14.9%*
Cooking	0.0%	6.5%	0.9%	7.0%	*11.3%*
	100.0%	100.0%	100.0%	100.0%	*100.0%*

Table 11.7. Fabric Groups by Prehistoric Period Groupings compared with objects of All Periods (excluding tile).

Extant Part	NEO	EBA	MBA	LBA	ALLFinds
Rim	14.8%	30.1%	10.2%	17.4%	*10.1%*
Base	4.9%	8.5%	12.0%	15.8%	*4.2%*
Body	80.3%	57.3%	71.3%	50.2%	*76.1%*
Handle	0.0%	4.1%	6.5%	16.6%	*9.6%*

Table 11.8. Extant Part for Pottery of Prehistoric Period Groupings compared with objects of All Periods (excluding tile)

total compared with 76% for *all pottery* in EKAS). But it is important to keep in mind, here and in subsequent period overviews, that the chronotype sampling system reduces duplicate sherds (Section 5.2.2), which this has a greater effect on particularly common objects like body sherds.

A consideration of narrower period groupings, however, illustrates some important differences between the various periods of prehistory (Table 11.7 and Table 11.8). Identification of chronotypes dating to the Neolithic, Early Bronze Age, and Middle Bronze Age in the landscape depended largely on the recognition of coarse- and medium-coarse ware sherds (80–94%) during survey; that is not substantially different than the proportions in the survey assemblage as a whole (74%). On the other hand, the fact that Late Bronze Age pottery consists predominantly of fine ware artifacts (70%) and that coarse and medium coarse sherds are a relatively small group (23%) points to a need for further research. Differences in relative proportions of extant parts may point to issues of recognition or identification: Neolithic and Middle Bronze Age assemblages contain the high percentages of body sherds (71% and 80% compared with 76% of the survey assemblage as a whole) that might be expected from an assemblage, but the lower percentages of body sherds for Early Bronze Age (57%) and Late Bronze Age (50%) suggest that body sherds of these periods were assigned to broader timeframes or were not picked up at all because they marked duplicates.

In sum, the Prehistoric assemblage was rich and varied and certainly points to substantial settlement in the region (Section 12.2).[38] Yet there are a few gaps in identification that affect the interpretation of historical change over the long prehistoric era.

11.3. Protogeometric–Hellenistic Assemblages

EKAS documented 6,702 objects of Protogeometric–Hellenistic date—an enormous quantity compared to that of other analytical periods in the survey (Table 11.9).[39] However, the period ranks behind Roman in total number of objects collected through standard methods alone (n=4,046).[40] Factoring in the duration of the period, moreover, yields an average of 4 artifacts per year—well behind Roman (5.8) and Modern (7.5). Still the overall quantities of this broad period are impressive. While most finds were recorded through standard survey with chronotype collection (60%), LOCA investigations (30%), which largely targeted pre-Roman sites (Ch. 6), played an unusually important role in documenting the material of this period; experimental units (6%) and grab samples (3%) yielded smaller proportions. Analysts illustrated 496 objects (7% of assemblage), photographed 403 objects (6%), and brought 687 artifacts out of the field (10%).

The 11 chronotype periods that make up the Protogeometric–Hellenistic analytical period include 8 *narrow periods* and 3 *broad periods*.[41] The vast majority of the objects of this broad analytical period (94%) date to centuries when Corinth functioned as an independent polis or was ruled by Macedonian kings—with very little of the assemblage (< 2%) clearly dating between 1050 and 700 BC.[42] The *Classical–Hellenistic* centuries are especially abundant but *Archaic* remains are also commonly represented in different chronotype periods.[43] There are also broad chronotype periods that overlap in their range with Protogeometric-Hellenistic;[44] the most important is *Ancient Historic*—an enormous assemblage of objects (n=14,525) dating between the end of the Bronze Age and the end of antiquity,[45] much of which could have been produced and discarded in the Iron Age.[46]

The Greek artifact assemblage is almost wholly (99.7%) ceramic pottery and tile. Other object classes include a few terracotta figurines and architectural moldings (n=6), andesite hopper mills (n=9), three coins, and waterproof cement and pebbly pavement (n=5).

Generally, the Protogeometric–Hellenistic material was highly visible in the landscape, with well-recognized body sherds (e.g., black glazed, painted, and red figured varieties),[47] tile (often painted), beehives, and amphora sherds. The broad period is associated with an exceptional range of chronotypes that make it the most diverse among

Period	Period-Dates	Start	End	Duration	Quantity
Greek Periods					
Protogeometric-Hellenistic	1050-31BC	-1050	-31	1019	307
Protogeometric-Archaic	1050-500BC	-1050	-500	550	11
Protogeometric	1050-900BC	-1050	-900	150	1
Geometric-Archaic	900-500BC	-900	-500	400	72
Geometric	900-700BC	-900	-700	200	45
Archaic-Hellenistic	700-31BC	-700	-31	669	1075
Archaic-Classical	700-323BC	-700	-323	377	2081
Archaic	700-500BC	-700	-500	200	198
Classical-Hellenistic	500-31BC	-500	-31	469	2185
Classical	500-323BC	-500	-323	177	687
Hellenistic	323-31BC	-323	-31	292	40
Greek Analytical Period					6702
Transitional or Overlapping Periods					
Late Bronze Age-Classical	1550-323BC	-1550	-323	1227	61
Ancient Historic	1050BC-AD700	-1050	700	1750	14525
Classical-Roman	500BC-AD700	-500	700	1200	1
Hellenistic-Early Roman	323BC-AD250	-323	250	573	23
Hellenistic-Roman	323BC-AD700	-323	700	1023	130

Table 11.9. Material of Protogeometric–Hellenistic Date and Transitional or Overlapping Periods

Material	Fabric Group	PG-HE Totals	PG-HE %	ALLFinds
Pottery	Coarse & Medium Coarse	1583	23.7%	*56.9%*
Pottery	Fine & Semi-Fine	2779	41.6%	*12.2%*
Pottery	Cooking	433	6.5%	9.3%
Pottery	Tile	1227	18.4%	*17.5%*
Pottery	Pithos	657	9.8%	*3.7%*
Pottery	Unknown	0	0.0%	*0.3%*
		6679	*100.0%*	*100.0%*

Table 11.10. Fabric Groups for Protogeometric–Hellenistic Analytical Period and All Periods

Extant-Part	PG-HE Totals	PG-HE %	ALLFinds
Rim	719	13.3%	*10.1%*
Base	597	11.0%	*4.2%*
Body	3409	62.9%	*76.1%*
Handle	694	12.8%	*9.6%*
	5419	100.0%	*100.0%*

Table 11.11. Extant Part for Pottery of Protogeometric–Hellenistic Analytical Period and All Periods (excluding tile)

the analytical periods (21% of count of all distinct chronotypes in the survey). The 10 most common chronotypes make up 53% of the total Protogeometric–Hellenistic assemblage,[48] and the top 15 constitute 69%, yet no single type dominates. Especially common are orange and blue core pithoi (dated to *Archaic–Classical*),[49] Corinthian pan tiles (*Archaic–Classical*),[50] painted Lakonian tiles (*Classical–Hellenistic*), various forms of fine and semi-fine ware (*Archaic–Hellenistic*,[51] *Classical–Hellenistic*), black glazed pottery (*Archaic–Hellenistic*, *Classical*),[52] and Corinthian A and B amphora. Ceramic chronotypes include a wide variety of forms (e.g., skyphoi, pithoi, amphora, lekythoi, oinochoe, kraters, kalathoi, kotyle, lamps, beehives) found in a range of fabric groups (fine, medium coarse, cooking, and tile). The abundance and variety of specialized products and forms make this one of the most visible periods in the landscape.

Compared to the EKAS survey assemblage as a whole, the Protogeometric–Hellenistic assemblage suggests broad consistencies in certain fabric classes such as proportions of cooking ware and tile (Table 11.10 and Table 11.11).[53] The major differences are that the proportions of coarse ware and medium coarse ware artifacts (24%) are

Fabric Group	*Geometric*	*Geometric-Archaic*	*Archaic*	*Archaic-Classical*	*Classical*	*Classical-Hellenistic*	*Hellenistic*	**ALLFinds**
Coarse and Medium Coarse	0.0%	4.2%	3.0%	85.8%	0.3%	45.5%	20.0%	*73.8%*
Fine and Semi-Fine	100.0%	94.4%	91.4%	12.9%	99.4%	32.4%	55.0%	*14.9%*
Cooking	0.0%	1.4%	5.6%	1.3%	0.3%	22.1%	25.0%	*11.3%*
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	*100.0%*

Table 11.12. Fabric Groups of of Common Protogeometric to Hellenistic Chronotype Periods compared with All Periods (excluding tile)

Extant Part	*Geometric*	*Geometric-Archaic*	*Archaic*	*Archaic-Classical*	*Classical*	*Classical-Hellenistic*	*Hellenistic*	**ALLFinds**
Rim	11.4%	16.9%	11.8%	10.1%	12.0%	16.5%	12.5%	*10.1%*
Base	22.7%	4.2%	25.0%	5.3%	19.0%	9.2%	10.0%	*4.2%*
Body	56.8%	70.4%	61.2%	75.2%	64.6%	56.0%	72.5%	*76.1%*
Handle	9.1%	8.5%	2.0%	9.4%	4.4%	18.3%	5.0%	*9.6%*

Table 11.13. Extant Part for Pottery of Common Protogeometric to Hellenistic Chronotype Periods compared with All Periods (excluding tile)

much lower than the entire EKAS assemblage (57%) and that fine ware and semi-fine ware are much higher (42% for Protogeometric–Hellenistic compared to 12% overall). Even if fine wares are more common for Protogeometric–Hellenistic than for other historic periods, coarse vessels seem underrepresented.[54] The proportion of body sherds too (Table 11.11: 63%) is lower compared to the survey assemblage in general (76%), but that may partly reflect the fact that duplicates were not often picked up. To understand these patterns, there needs to be further investigation of the underlying chronotypes and further comparison with quantified excavated Protogeometric–Hellenistic assemblages from different kinds of contexts.[55]

A consideration of the dominant narrow chronotype periods of Protogeometric–Hellenistic date points to some gaps in identification (Table 11.12 and Table 11.13). The individual chronotype periods show widely varying percentages of different pottery fabric groups, some periods being identified almost wholly from fine and semi-fine ware (*Geometric*, *Geometric–Archaic*, *Archaic*, and *Classical*),[56] others from coarse and medium coarse wares (*Archaic–Classical*),[57] still others from a mixture; these differences likely reflect the dependency of each period on certain chronotypes. The relative percentages of ceramic parts between different periods are somewhat more consistent: the proportion of body sherds, for example, falls between 56% and 75%, which approximates the survey as a whole (76%). Nonetheless, rims or bases are too proportionally common at the expense of body sherds for some chronotype periods. These differences in body sherd proportions could in part reflect real differences between the ceramic signatures of different periods, including particular chronotypes. But the important point is that differential visibility impacts the process of interpreting change according to the total quantities of different periods.

Altogether, the period of Protogeometric–Hellenistic times is a very bright one in the eastern Corinthia.[58] *Archaic*, *Classical*, and *Hellenistic* artifacts are most common, and the *Classical–Hellenistic* era in particular is abundant and rich.[59] The patterns of these different chronotype periods, however, have to be disentangled further. Each needs to be considered in light of its underlying source and other forms of evidence.

Figure 11.4. *Protogeometric*, *Geometric*, and *Geometric-Archaic* artifacts analyzed in EKAS. Top: 1238000501 and 1259000001. Middle: 1588000001 and 2120000005. Bottom: 9001000501 and 9002042328. Photos from EKAS Archive.

Figure 11.5. *Archaic–Classical* and *Classical* artifacts analyzed in EKAS. Top: 0017000010 and 1035000020. Middle: 1055000018 and 1256000547. Bottom: 1805000001 and 9005000510. Photos from EKAS Archive.

Figure 11.6. *Classical–Hellenistic* artifacts analyzed in EKAS. Top: 0527000046 and 1161000001. Middle: 1227000013 and 1543000025. Bottom: 2077000504 and 9008145105 Photos from EKAS Archive.

Figure 11.7. Objects of *Classical* and *Hellenistic* date analyzed in EKAS. Top: 0610000007 and 1039000020. Middle: 1055000020 and 1256000526. Bottom: 2077000503 and 9001000001. Photos from EKAS Archive.

Period	Period-Dates	Start	End	Duration	Quantity
Roman Periods					
Roman	31BC-AD700	-31	700	731	3191
Roman, Early	31BC-AD250	-31	250	281	394
Roman, Middle	AD150-400	150	400	250	61
Roman, Late	AD250-700	250	700	450	2200
Roman Analytical Period					5846
Transitional or Overlapping Periods					
Ancient Historic	1050BC-AD700	-1050	700	1750	14525
Classical-Roman	500BC-AD700	-500	700	1200	1
Hellenistic-Early Roman	323BC-AD250	-323	250	573	23
Hellenistic-Roman	323BC-AD700	-323	700	1023	130
Roman-Early Medieval	31BC-AD-1200	-31	1200	1231	5
Roman-Medieval	31BC-AD1800	-31	1800	1831	169
Roman-Modern	31BC-AD2000	-31	2000	2031	8

Table 11.14. Material of Roman Date and Transitional or Overlapping Periods.

11.4. Roman Assemblages

The Roman period was the most visible analytical period in the Eastern Korinthia Survey (Table 11.14). Field teams collected 4,219 objects of broad Roman date through standard methods (and 5,846 objects through all methods),[60] which, when averaged for duration of period, equals 5.8 artifacts per year, the highest other than the Modern period.[61] About 72% of the objects were collected during standard chronotype survey but a significant quantity also came through experimental units (14%) and LOCAs (11%). Processing teams drew 471 (8%) artifacts and photographed 272 (5%) that are accessible today in Open Context. About 700 Roman artifacts were brought out of the field and may be studied at the Isthmia Dig House.

The objects from the Roman analytical period represent 1 broad period (*Roman*: 31 BC–AD 700) and 3 narrow periods: *Early Roman* (31 BC–AD 250), *Middle Roman* (AD 150–400), and *Late Roman* (AD 250–700).[62] The dominant chronotype periods are *Roman* (54%) and *Late Roman* (38%). Still, some 394 objects, or 7% of the Roman analytical category, could be dated to the *Early Roman* period and another

61 objects (1% of Roman total) to *Middle Roman*.[63] A small corpus of objects date to narrow transition periods that overlap with Roman material.

Most of the Roman finds in EKAS are ceramic fragments (pottery and tile), comprising 98.7% of the assemblage (compare with 95.6% for the entire assemblage of objects of all periods). Of the small corpus of other material types, the biggest class is glass (30 vessel fragments, 3 window fragments and 4 glass tesserae), followed secondly by stone objects (21 marble revetment fragments, 4 stone tesserae, 3 trapetum fragments, and 2 marble cut stoppers). Other classes include a painted plaster fragment, 3 coins, and 3 terracotta circular weights.

The Roman assemblage is also highly diverse. Processing teams recorded some 87 separate chronotypes to describe Roman artifacts,[64] which represent a noteworthy 14% of the 621 chronotypes used in the survey. The most common 15 chronotypes (82% of total) date either to the *Roman* period or *Late Roman*, although *Early Roman* Koan-type amphoras are also on that list.[65] The most common Roman chronotypes represent coarse or medium coarse amphoras, jars, or jugs, but kitchenware, fine ware, and tile of *Roman* or *Late Roman* date are also common.[66] The other 62 chronotypes (18% of the analytical period) include a variety of *Early Roman*, *Middle Roman*, and *Late Roman* fine ware, imported table wares, amphorae, lamps, kitchen wares, and tile, as well as other kinds of *Roman* objects such as ceramic basins, beehives, and water pipes, as well as the other object classes named above.[67]

A breakdown of the Roman ceramic assemblage by fabric groups and extant parts mirrors that of the survey data generally.[68] Roman coarse wares and medium coarse wares, fine wares, and cooking wares were more proportionally represented when compared to the entire survey assemblage, while Roman tile and pithos fragments were underidentified (Table 11.15).[69] A comparison by extant parts (excluding tiles) shows nearly identical proportions of bases and handles and suggests that Roman body sherds were slightly under identified and rims proportionally overrepresented (Table 11.16). Such comparisons suggest that teams collected and analysts successfully identified a representative range of artifacts for the Roman analytical period as a whole.[70]

The narrow chronotype periods tell a slightly different story. Of 3 periods, *Late Roman* and *Middle Roman* approach the expected relative proportions of fabric groups (Table 11.17), while *Early Roman* probably underestimates the percentage of coarse- and medium-coarse wares.[71] An examination of extant parts (Table 11.18) shows that the *Late Roman* assemblage most closely parallels identified extant parts

Material	Fabric Group	Roman Totals	Roman %	ALLFinds
Pottery	Coarse & Medium Coarse	3737	64.7%	*56.9%*
Pottery	Fine & Semi-Fine	1069	18.5%	*12.2%*
Pottery	Cooking	702	12.2%	*9.3%*
Pottery	Tile	260	4.5%	*17.5%*
Pottery	Pithos	4	0.1%	*3.7%*
Pottery	Unknown	0	0.0%	*0.3%*
		5772	100.0%	*100.0%*

Table 11.15. Fabric Groups for Roman Analytical Period.

Material	Extant-Part	Roman Totals	Roman %	ALLFinds
Pottery	Rim	1127	20.5%	*10.1%*
Pottery	Base	212	3.9%	*4.2%*
Pottery	Body	3605	65.7%	*76.1%*
Pottery	Handle	545	9.9%	*9.6%*
		5489	100.0%	*100.0%*

Table 11.16. Extant Part for pottery of Roman Analytical Period (excluding tile).

Fabric Group	*Early Roman*	*Middle Roman*	*Late Roman*	ALLFinds
Coarse and Medium Coarse	34.8%	85.3%	82.9%	*73.8%*
Fine and Semi-Fine	40.3%	9.8%	9.3%	*14.9%*
Cooking	24.9%	4.9%	7.8%	*11.3%*
	100.0%	100.0%	100.0%	*100.0%*

Table 11.17. Fabric Groups by Roman chronotype periods compared with All Periods (excluding tiles).

Extant Part	*Early Roman*	*Middle Roman*	*Late Roman*	ALLFinds
Rim	16.1%	18.0%	19.9%	*10.1%*
Base	9.7%	4.9%	2.0%	*4.2%*
Body	41.8%	39.4%	72.0%	*76.1%*
Handle	32.4%	37.7%	6.1%	*9.6%*

Table 11.18. Extant Part for pottery of Roman chronotype periods compared with All Periods.

for the survey as a whole: mostly body sherds (72%) followed by lower percentages of rims (20%), handles (6%), and bases (2%).[72] The *Early Roman* and *Middle Roman* periods are clearly overrepresented in their proportion of rims and handles and underrepresented in the proportion of body sherds.[73] To a large extent, these factors explain the dramatic differences in absolute quantities between the *Early Roman* and *Late Roman* assemblages (cf. Table 11.14), which reflect the differential visibility of these three chronotype periods of the Roman era.[74]

Altogether, the Roman assemblage in EKAS is abundant and diverse, represented by many material classes and chronotypes. While this abundance points to intensive settlement in the region, it also reflects greater recognition in the differential visibility of *Late Roman* compared to *Early Roman*, *Middle Roman*, and *Early Medieval*.[75]

Figure 11.8. Objects of *Early Roman* date analyzed in EKAS. Top: 1153000004 and 1277000008. Middle: 2160000501 and 2160000502. Bottom: 3078000015 and 3086000011. Photos from EKAS Archive.

Figure 11.9. Objects of *Middle Roman* date analyzed in EKAS. Top: 0594000009 and 1167000007. Bottom: 3061000006 and 9221008517. Photos from EKAS Archive.

Figure 11.10. Objects of *Late Roman* date analyzed in EKAS. Top: 0092000002 and 0524000007. Middle: 0527000042 and 1223000002. Bottom: 2129000004 and 9221012504. Photos from EKAS Archive.

Figure 11.11. Objects of broad *Roman* chronotype period analyzed in EKAS. Top: 0025000001 and 0089000002. Middle: 0531000006 and 0591000004. Bottom: 3052000033 and 9221006516. Photos from EKAS Archive.

Period	Period-Dates	Start	End	Duration	Quantity
Medieval Periods					
Medieval	AD700-1800	700	1800	1100	203
Medieval, Early	AD700-1200	700	1200	500	23
Medieval, Late	AD1200-1537	1200	1537	337	72
Medieval, Ottoman/Venetian	AD1537-1800	1537	1800	263	24
Medieval Analytical Period					322
Transitional or Overlapping Periods					
Medieval-Modern	AD700-2000	700	2000	1300	110
Roman-Early Medieval	31BC-AD1200	-31	1200	1231	5
Roman-Medieval	31BC-AD1800	-31	1800	1831	169
Roman-Modern	31BC-2000	-31	2000	2031	8

Table 11.19. Material of Medieval Analytical Period and Transitional or Overlapping Periods.

11.5. Medieval Assemblages

The Medieval period is the least visible and least documented of the Korinthia Survey (Table 11.19).[76] EKAS recorded 265 artifacts of Medieval date through standard units and methods (and 322 artifacts overall), which is the lowest rate of deposition—0.24 artifacts per year—of the entire survey. The vast majority of objects were identified (82%) through standard chronotype survey,[77] but LOCA investigations (9%) and experimental units (6%) also generated small amounts. Analysts illustrated 43 artifacts and photographed 48 objects (13–15% of assemblage). Some 50 objects (15%) were collected for further study.

Four chronotype periods make up the Medieval period: *Medieval* (MED: 700–1800 AD), *Early Medieval* (700–1200 AD), *Late Medieval* (1200–1537 AD), and *Ottoman/Venetian* (1537–1800 AD).[78] Some 63% of the Medieval objects in the survey were dated to the broad *Medieval* period. Of the narrow periods, *Late Medieval* is most common (n=72, 22% of Medieval assemblage), while *Early Medieval* and *Ottoman/Venetian* each yielded only 24 artifacts (7%).[79] In addition, 292 objects date to broad periods that overlap with the Medieval era.[80]

Compared to earlier and later periods, the Medieval period is much less common: its total assemblage (322 artifacts) represents 5% of earlier Roman and Protogeometric–Hellenistic assemblages, 14% of the

Material	Fabric Group	Medieval Totals	Medieval %	ALLFinds
Pottery	Coarse & Medium Coarse	163	50.8%	*56.9%*
Pottery	Fine & Semi-Fine	79	24.6%	*12.2%*
Pottery	Cooking	20	6.2%	9.3%
Pottery	Tile	58	18.1%	*17.5%*
Pottery	Pithos	1	0.3%	*3.7%*
Pottery	Unknown	0	0.0%	*0.3%*
		321	5.6%	*100.0%*

Table 11.20. Fabric Groups for Medieval Analytical Period and All Periods.

Material	Extant-Part	Medieval Totals	Medieval %	ALLFinds
Pottery	Rim	32	12.3%	*10.1%*
Pottery	Base	28	10.7%	*4.2%*
Pottery	Body	165	63.2%	*76.1%*
Pottery	Handle	36	13.8%	*9.6%*
		261	100.0%	*100.0%*

Table 11.21. Extant Part for pottery of Medieval Analytical Period and All Periods (excluding tile).

Prehistoric assemblage, and 18% of Modern material.[81] The average number of Medieval artifacts per year is only 3–4% of the average for Protogeometric-Hellenistic, Roman, and Modern periods (cf. Table 11.3).[82]

Most Medieval artifacts (99%) are ceramic objects.[83] The non-ceramic artifacts discovered include two Byzantine coins dating to the late-tenth to early eleventh century (follis) and the mid-twelfth century (half-tetarteron), and a florin (φλουρί) of *Ottoman/Venetian* date.[84] Ceramic objects were usually pottery sherds (82%), but a small corpus of 58 *Medieval* tile fragments represent 18% of the total assemblage.[85]

Artifacts of the Medieval period are not nearly as varied as the Prehistoric, Protogeometric–Hellenistic, Roman, and Modern analytical periods, but the variation is still substantial.[86] Processing teams documented 45 distinct chronotypes representing the Medieval period;[87] these make up 7% of the total number of chronotypes (n=621) produced during survey. The 15 most common chronotypes—a third of the total number of Medieval chronotypes—represent 80% of the entire Medieval assemblage.[88] Especially common were unglazed *Medieval*

Figure 11.12. Objects of *Early Medieval* date analyzed in EKAS. Top: 1048000005 and 3078000013. Middle: 3084000005 and 9121002501. Bottom: 3086000008. Photos from EKAS Archive.

Figure 11.13. Objects of *Late Medieval* date analyzed in EKAS. Top: 0565000029 and 1141000014. Middle: 1555000025 and 2229000004. Bottom: 2232000001 and 2232000009. Photos from EKAS Archive.

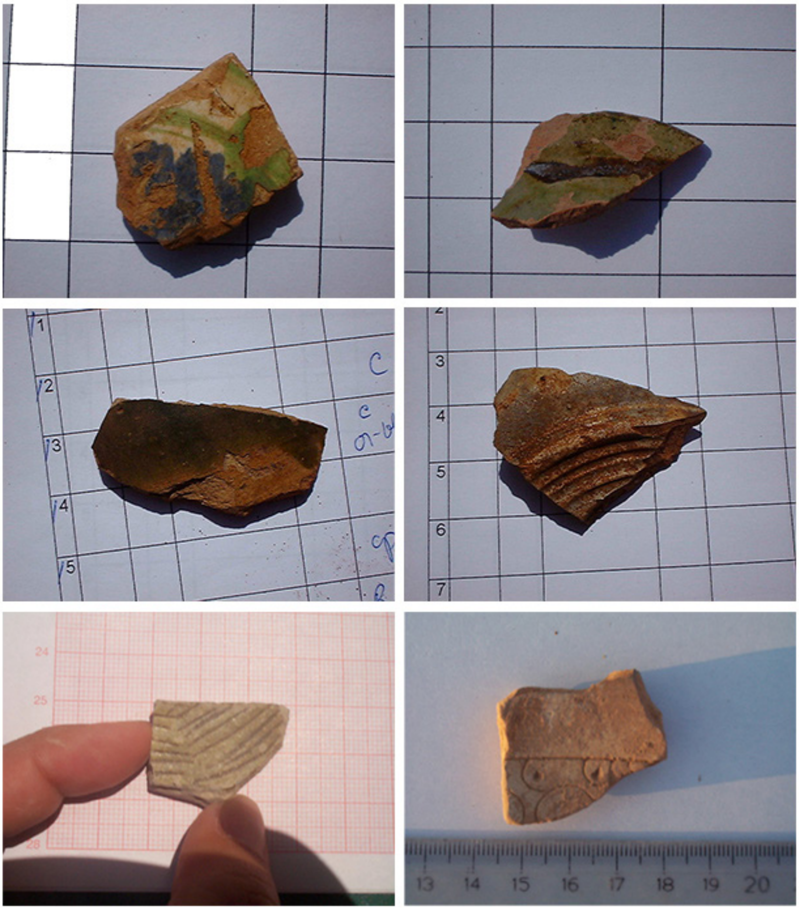


Figure 11.14. Objects of *Ottoman/Venetian* date analyzed in EKAS. Top: 0034000015 and 0074000003. Middle: 0554000020 and 0554000021. Bottom: 2125000017 and 2211000007. Photos from EKAS Archive.

Figure 11.15. Objects of broad *Medieval* chronotype period analyzed in EKAS. Top: 0038000003 and 1156000030. Middle: 9002066501 and 9112002515. Bottom: 9121002504 and 9121002505. Photos from EKAS Archive.

Fabric Group	*Medieval*	*Early Medieval*	*Late Medieval*	*Ottoman/ Venetian*	ALLFinds
Coarse and Medium Coarse	74.7%	10.0%	54.2%	52.2%	*73.8%*
Fine and Semi-Fine	8.9%	70.0%	41.7%	47.8%	*14.9%*
Cooking	16.4%	20.0%	4.2%	0.0%	*11.3%*
	100.0%	100.0%	100.0%	100.0%	*100.0%*

Table 11.22. Fabric Groups for Medieval Chronotype Periods compared with All Periods (excluding tile).

Extant Part	*Medieval*	*Early Medieval*	*Late Medieval*	*Ottoman/ Venetian*	ALLFinds
Rim	6.2%	40.0%	18.3%	8.7%	*10.1%*
Base	7.6%	20.0%	11.3%	21.7%	*4.2%*
Body	74.5%	30.0%	47.9%	69.6%	*76.1%*
Handle	11.7%	10.0%	22.5%	0.0%	*9.6%*

Table 11.23. Extant Part for pottery of Medieval Chronotype Periods compared with All Periods (excluding tile).

and *Late Medieval* medium coarse wares and *Medieval* tile types, but other frequent chronotypes include *Medieval* kitchen ware, semi-fine ware, amphoras, Sgraffito Ware, and glazed medium coarse;[89] *Late Medieval* glazed fine ware and Sgraffito Ware;[90] *Early Medieval* Sgraffito Ware;[91] and *Ottoman/Venetian* medium coarse ware in both glazed and unglazed variants.[92] The other 29 Medieval chronotypes represent a variety of jars, amphoras, pithoi, kitchen vessels, table ware, lamps, and tile.[93]

Collectively the Medieval fabric groups appear similar to the survey assemblage generally (Table 11.20 and Table 11.21).[94] One notes, for example, that coarse wares and medium coarse wares represent over 50% of Medieval ceramics (compared to 57% for all periods), while identified Medieval tiles (18.1%) are comparable to the percentage of tiles for all periods (17.5%). The relative percentage of Medieval fine and semi-fine fabrics (24.6%) is higher than one might expect—twice the percentage of the assemblage as a whole (12.2%)—and in large part reflects the reliance on glazed surfaces for identification.[95] The percentage of Medieval cooking ware (6%) approximates that of the entire assemblage of all EKAS pottery (9%).[96] The obvious missing category is that of pithoi, which are underrepresented (n=1, or 0.3%) when compared to the survey generally (3.7%).

A breakdown by extant parts shows relative percentages comparable to the survey assemblage (Table 11.21): body sherds dominate, and rims, handles, and bases are less common. EKAS ceramicists were often able to identify body sherds to the Medieval period even in cases with plain surfaces: glazing, painting, incision, or ridging characterized only 36% of the 165 Medieval body sherds, indicating that 64% of body sherds were identified on the basis of the physical attributes of fabric, thickness, and color.[97] While body sherds were proportionally underrepresented and fine wares relatively overrepresented, enough was identified in general to locate the Medieval presence in the landscape.[98]

Individual chronotype periods tell a more varied story (cf. Table 11.22 and Table 11.23). *Early Medieval* is too reliant on fine and semi-fine ware, underrepresents coarse wares, and depends on identified feature sherds (rims especially, but also glazed and combed body sherds).[99] *Late Medieval* appears more balanced but may underrepresent cooking ware and coarse ware, and overrepresent fine and semi-fine wares (42%);[100] the relative percentage of body sherds (48%), in any case, is too low and depends almost entirely on decoration (glazing) or surface treatment (ridging or grooving). *Ottoman/Venetian* is comparable but is distinct in its absence of identified cooking wares and handles;[101] its relatively higher percentage of body sherds (70%) reflects easily identified surface treatments and decorations, especially glazing and grooving, but also incisions and slips. *Late Medieval* appears most visible of the narrow periods, while *Ottoman/Venetian* may be slightly more visible in its ceramic forms than *Early Medieval*.[102]

An important takeaway of the analysis of scarce Medieval landscape is that other kinds of archaeological evidence (e.g., the Byzantine and Venetian walls in the eastern Corinthia) and broader artifact periods (e.g., *Medieval–Modern*) are necessary for interpreting Medieval settlement and land use.[103]

Period	Period-Dates	Start	End	Duration	Quantity
Modern Periods					
Modern	AD1800-2000	1800	2000	200	953
Modern, Early	AD1800-1960	1800	1960	160	301
Modern, Present	AD1960-2000	1960	2000	40	500
Modern Analytical Period					1754
Transitional or Overlapping Periods					
Medieval-Modern	AD700-2000	700	2000	1300	110
Roman-Modern	31BC-2000	-31	2000	2031	8

Table 11.24. Material of Modern date and Transitional or Overlapping Periods.

11.6. Modern Assemblages

The Modern period was the most visible in the survey (Table 11.24). Although the 1,506 objects recorded in standard units with chronotype sampling ranked fourth of analytical periods in overall quantity, the period ranked first in the average number of objects (7.5) per year. Field teams gathered the vast majority of objects (86%) through pedestrian methods and standard survey units (chronotype) while experimental units (8%) and grab samples (5%) played a smaller role.[104] Analysts drew 38 objects and photographed 45 objects—about 2.5% of the total Modern assemblage—and brought back a small sample of objects (n=113, or 7% of total) to Isthmia.[105]

The Modern period includes one broad chronotype period and two narrow chronotype periods. The *Modern* chronotype period (n=953) comprises over half of the assemblage, while *Modern Present* (n=500) makes up 29% and *Early Modern* (n=301) 17%.[106] Material dated to the *Modern* chronotype period during original analysis most likely dates to very recent times since there is a very close spatial correlation between the mean centers of *Modern* units and *Modern Present* units; near analysis likewise suggests a strong relationship.[107] If these artifacts of *Modern* chronotype date actually date to recent times, as seems very likely, we have a clearer picture of the intensive explosion of population, rural building, and consumer goods in the landscape since the 1960s.

Figure 11.16. Objects of *Early Modern* date analyzed in EKAS. Top: 0078000020 and 0535000015. Middle:1170000005 and 2230000001. Bottom: 7023000004 and 7037000023. Photos from EKAS Archive.

Figure 11.17. Objects of *Modern Present* date analyzed in EKAS. Top: 1003000001 and 1169000006. Middle: 1228000029 and 1524000015. Bottom: 1800000026 and 2131000035. Photos from EKAS Archive.

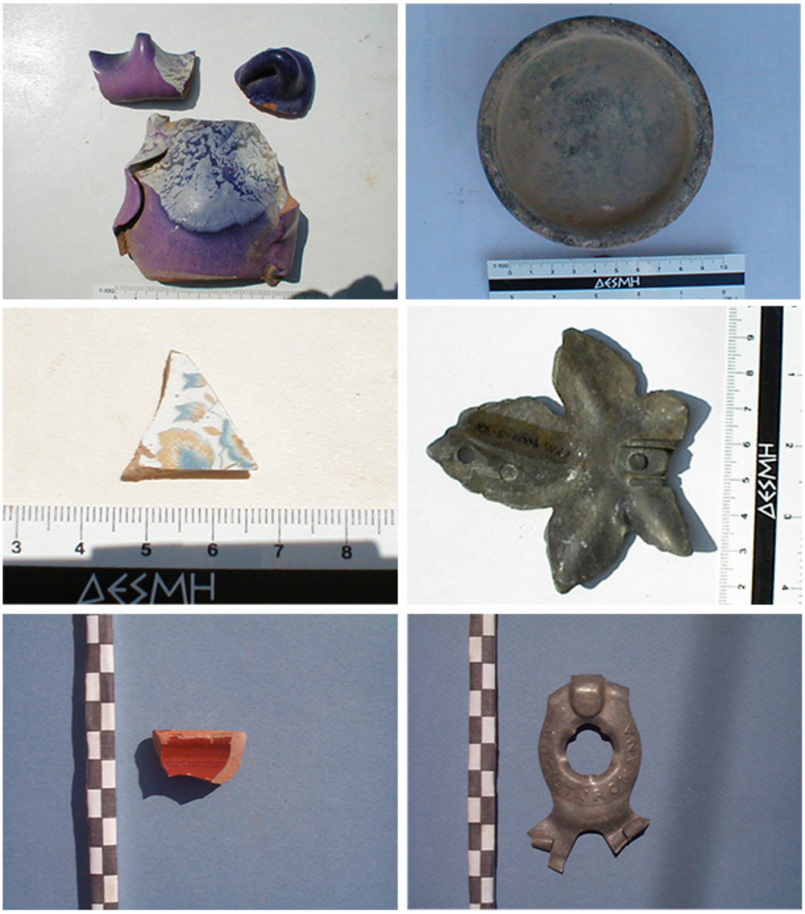


Figure 11.18. Objects of broad *Modern* chronotype period analyzed in EKAS. Top: 1203000015 and 1528000005. Middle: 1542000009 and 9004005301. Bottom: 9004005305 and 9152000501. Photos from EKAS Archive.

Material	Fabric Group	Modern Totals	Modern %	ALLFinds
Pottery	Coarse & Medium Coarse	298	26.8%	*56.9%*
Pottery	Fine & Semi-Fine	310	27.9%	*12.2%*
Pottery	Cooking	79	7.1%	*9.3%*
Pottery	Tile	407	36.7%	*17.5%*
Pottery	Pithos	16	1.4%	*3.7%*
Pottery	Unknown	0	0.0%	*0.3%*
		1110	100.0%	*100.0%*

Table 11.25. Fabric Groups for Modern Analytical Period and All Periods.

Extant-Part	Modern Totals	Modern %	ALLFinds
Rim	157	22.8%	*10.1%*
Base	75	10.9%	*4.2%*
Body	431	62.6%	*76.1%*
Handle	26	3.8%	*9.6%*
	689	100.0%	*100.0%*

Table 11.26. Extant Part for pottery of Modern Analytical Period and All Periods (excluding tile).

The Modern assemblage is most different from earlier periods in that many classes of material are preserved.[108] While the premodern assemblages depended largely on ceramic remains with occasional exceptions, only 63% of Modern artifacts consist of ceramic remains (pottery and tile).[109] Other important artifact classes are glass vessels and windowpane (19% of Modern total) and composite construction material (11%), especially brick, ceramic floor or wall tile, and elenit.[110] Metal, too, is fairly common (n=58, about 4% of assemblage) and includes everything from nails and screws to cans, coins, spoons, locks, bullet casings, and farm equipment parts. Marble revetment and paving are present in small numbers (n=28), while plastic and *other* material types were identified in trace amounts. This variety exists despite a rule that fieldwalkers only pick up Modern pottery and tile. [111]

Walkers evidently picked up objects (e.g., nails, glass, and marble revetment) that they thought *might* be premodern, or simply appeared unique and interesting in character, such as coins, an embossed military ornament inscribed with *Societa Romana* (9152000501),[112] and an unexploded hand grenade! We can expect that our sample of Modern artifacts significantly underrepresents what fieldwalkers actually saw.[113]

Fabric Group	*Modern*	*Early Modern*	*Modern Present*	ALLFinds
Coarse and Medium Coarse	41.9%	50.4%	41.6%	*73.8%*
Fine and Semi-Fine	57.8%	44.2%	27.0%	*14.9%*
Cooking	0.3%	5.4%	31.4%	*11.3%*
	100.0%	100.0%	100.0%	

Table 11.27. Fabric Groups for Modern Chronotype Periods compared with All Periods (excluding tile).

Extant Part	*Modern*	*Early Modern*	*Modern Present*	ALLFinds
Rim	19.6%	23.1%	27.3%	*10.1%*
Base	7.7%	12.6%	14.5%	*4.2%*
Body	69.6%	56.6%	55.9%	*76.1%*
Handle	3.1%	7.7%	2.3%	*9.6%*

Table 11.28. Extant Part for pottery of Modern Chronotype Periods compared with All Periods (excluding tile).

The Modern assemblage includes 92 distinct chronotypes representing 15% of the total number of chronotypes in the survey. The 15 most common chronotypes represent 64% of the Modern assemblage, but there are numerous Modern chronotypes represented by only a few examples.[114] Common chronotypes include Lakonian tile of *Modern* and *Early Modern* date, modern bricks, yoghurt pots, imitation porcelain, and clear glass bottles.[115] No single chronotype dominates the Modern period; variety, rather, indicates a specialized assemblage.[116]

Although there is variety in the Modern assemblage,[117] the *ceramic* assemblage itself is not significantly more visible than earlier periods. A breakdown of Modern fabric groups, for example, does not appear so different than Medieval (cp. Table 11.25 with Table 11.20): fine wares play a disproportional role in identifying each period (25% for Medieval, 28% for Modern), cooking ware falls in the 6–7% range for both periods, and coarse wares and tiles together make up the majority of each period's assemblage (about 75% for Medieval, 64% for Modern).[118] Over 70% of Modern body sherds were recognized by surface treatments or finishing such as glazes, porcelain finish, and ridging and combing.[119] Modern ceramics are more visible, however, due to highly recognizable tiles identified by finish, fabric, and hardness. Examining broad classes of pottery fabric groups and extant parts by individual chronotype periods does not change that picture very much (Table 11.27 and Table 11.28).[120]

Anyone who seeks to reuse the data for the modern period must also consider an important methodological factor that may potentially distort Modern density data and distributions.[121] Modern tiles number among the most common chronotypes of the *Modern*, *Early Modern*, and *Modern Present* periods, but fieldwalkers during the 1999 season were instructed not to flag plain tile fragments, undecorated body sherds, and obviously Modern artifacts (Section 5.2.2).[122] Fieldwalkers flagged Modern artifacts anyway, especially sherds, unaware that they were Modern (rather than, say, Medieval or Ancient), but they did not flag Modern tile fragments.[123] That decision has deflated Modern densities for areas surveyed in the transect between the slopes of Mount Oneion and the Rachi Boska Ridge (Z1, Z2, Z3, Z4, Z5, Z6, Z7, Z8, Z9, Z10, Z11).[124] Any analysis of Modern distributions in EKAS must consider whether to include or exclude tiles which are undercounted for 1999.

Even so, the Modern period assemblage is varied and common, and it invites further interpretation against a wider array of evidence, including building remains, oral histories, aerial photos, and historical maps.[125] This abundance and visibility do not necessarily make interpretation easy but allow us to write more confidently about land use, settlement, and village locations.

01100010 01110010 01100101 01100001 01101011

The goal of this chapter was to provide a broad overview of the chronological data collected through our sample in order to show a range of ways that an analyst can characterize the findings of the eastern Corinthia survey and the major periods of deposition over time. I drew attention to the pathways created by data-centered surveys to aggregate the atomic units of artifact types at different time scales, parse and analyze them in different ways, and critically evaluate the visibility of different periods in the landscape. In all cases, this involved widening the chronological filter to incorporate broader classes of evidence. In the following chapter, I will show how GIS tools (such as near analysis and mean center analysis) may be used to build a case for associating artifacts of coarser dates (e.g., *Modern*) with narrower period designations (*Modern Present*).[126] Clearly one of the greatest advantages of data-rich distributional approaches is a finer understanding of the nature of sources for reconstructing historical change in the region.

Considered at the broadest level, most of the analytical periods appear brightly in the region. The Protogeometric–Hellenistic and Roman periods are about as equally abundant and diverse, suggesting a rich habitation and land use of the Isthmus and even parts of the southeast territory.[127] The Prehistoric assemblage is also substantial, not only (as I will show) because of the important sites on the Isthmus, but also because of settlements in other parts of the territory.[128] The Modern era record is particularly abundant and varied in light of its short duration which points to the intensity of discard over the last half century and the durability of non-ceramic materials. Only Medieval remains are truly uncommon in comparison, and 300+ artifacts, while thin on the ground, invite further study to reclaim broader evidence of settlement and land use from material of broader and overlapping periods.[129]

One of the important results of this overview is the recognition that none of the broad analytical periods are wholly representative of the sort of assemblages we might expect if identifications were mostly complete. Feature sherds (rims, bases, handles, and surface-treated or decorated body sherds) are proportionally too common, fine wares too dominant, and coarse plain body sherds not common enough. Our samples are obviously incomplete. This problem of differential visibility of periods is most acute for narrow periods: *Late Roman* is significantly more visible than *Early Roman*, *Late Medieval* more than *Ottoman/Venetian*, due in part to recognizable types.[130] These patterns encourage a textured approach that both aggregates and layers the landscape according to different chronological criteria and proceeds with the critical awareness of the risks of extrapolation from samples. To the first of these analyses—period aggregation—we now turn.

Endnotes

1 Rutter 1983; Alcock 1993,49–53; Millett 1985, 1991, 2000; Caraher, Nakassis, and Pettegrew 2006, pp. 21–26; Pettegrew 2007, 749–51.

2 Collecting combed Late Roman body sherds or glazed Middle Byzantine bases, for example, while ignoring plain body, has led to distorted views of boom-and-bust settlement patterns. On the problem of differential visibility generally, see Bintliff, Howard, and Snodgrass 1999; Sanders 2004; Pettegrew 2007 and 2010; Caraher, Moore, and Pettegrew 2014, 35–36, 182–188; Knodell et al. 2023, 295, with references.

3 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and Modern (https://n2t.net/ark:/28722/k2g16dz03).

4 As noted in Section 1.3, italicized, (typically) hyperlinked period names indicate specific Chronotype Periods of the survey. Unitalicized hyperlinked period names represent Analytical Periods. Unitalicized names without hyperlinks represent generic non-specified references to periods.

5 *Protogeometric–Hellenistic* (https://n2t.net/ark:/28722/k2g73tf3q), *Roman* (https://n2t.net/ark:/28722/k23r1944z) and *Final Neolithic–Early Helladic I* (https://n2t.net/ark:/28722/k2zw1w36n).

6 For a similar approach to analyzing periodization, but with slightly broader ranges, see Caraher and Pettegrew 2014, 175–178; *Ancient* (https://n2t.net/ark:/28722/k2sf36p38), *Late Helladic–Modern Present* (https://n2t.net/ark:/28722/k2w66wk69), *Prehistoric* (https://n2t.net/ark:/28722/k2x63xg6j) and *Ceramic Age* (https://n2t.net/ark:/28722/k2d79rn4q).

7 An analysis of ceramic remains from the Mazi Archaeological Project in northwest Attica show broadly comparable amounts: see Cloke et al, 2023. Figure 12 in the article shows that only 33% of sherds could be dated 500 years or less, 67% at a thousand years or more.

8 To produce this weighted average, I multiplied the number of objects by the duration of their associated period, and then divided by the total number of finds.

9 The median period duration of all 65 periods used in EKAS is 700 years.

10 Caraher and Pettegrew 2014, 175–178, who found that only 47% of analyzed objects could be dated to less than 1,000 years.

11 Late Roman pottery is now easily identified through studies such as Hayes 1972 and Peacock and Williams 1986. Scholars have made great strides to identify medieval and Ottoman pottery in survey: Vroom 2003, 2014; Gregory 2009.

12 The dating of ceramic wares of the Corinthia are now well established, and dating is continually refined as a result of careful morphological studies of stratified deposits from Corinth, Isthmia, Kenchreai, and elsewhere. Among many, see Slane 2000, 2003; Slane and Sanders 2005; James 2018.

13 Millett 1985, 1991, 2000; Attema et al. 2020, 8–11; Knodell et al. 2023, 294–296.

14 See my efforts to splice the Roman era in the survey area in Pettegrew 2016.

15 For examples from EKAS: Caraher, Nakassis, and Pettegrew 2006, 26–34; Gregory 2007.

16 On analytical periods, see Caraher and Pettegrew 2014, 175–178.

17 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and Modern (https://n2t.net/ark:/28722/k2g16dz03).

18 *Neolithic* (https://n2t.net/ark:/28722/k2w38662w), *Late Helladic IIIA* (https://n2t.net/ark:/28722/k21z4n40r).

19 https://pleiades.stoa.org/places/570182

20 https://n2t.net/ark:/28722/k2b85q477

21 https://n2t.net/ark:/28722/k26m3pq5x

22 See Attema et al. 2020, 8–12, for a discussion of the variety of reasons that different periods may be differently invisible in landscapes.

23 For a case study of differential visibility, using EKAS data, for the Roman period: Pettegrew 2007. See also the recent effort of archaeologists (Cloke et al.,2023) from the Mazi Archaeological Project to reclaim information from imprecisely dated sherds.

24 https://n2t.net/ark:/28722/k2qj7vk08

25 https://n2t.net/ark:/28722/k2kh10w9f

26 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08); *Prehistoric* (https://n2t.net/ark:/28722/k2x63xg6j) and *Neolithic* (https://n2t.net/ark:/28722/k2w38662w)

27 *Early Helladic II* (https://n2t.net/ark:/28722/k2891n248), *Middle Bronze Age* (https://n2t.net/ark:/28722/k21v5xq7d).

28 *Prehistoric* (https://n2t.net/ark:/28722/k2x63xg6j), *Bronze Age* (https://n2t.net/ark:/28722/k25q5bx30), and *Late Bronze Age–Classical* (https://n2t.net/ark:/28722/k2z60zc3b).

29 https://n2t.net/ark:/28722/k2qj7vk08

30 *Early Bronze Age* (https://n2t.net/ark:/28722/k22r4874q); 1724000019 (https://n2t.net/ark:/28722/k2jt00v21)

31 0620000017 (https://n2t.net/ark:/28722/k2mk6nt4w)

32 *Ceramic Age* (https://n2t.net/ark:/28722/k2d79rn4q), *Prehistoric–Classical* (https://n2t.net/ark:/28722/k2mk6rk40)

33 See, for example, Kardulias' analysis of lithic objects from Isthmia (Kardulias 2009).

34 *Final Neolithic–Early Helladic I* (https://n2t.net/ark:/28722/k2zw1w36n), *Early Bronze Age* (https://n2t.net/ark:/28722/k22r4874q), *Early Helladic I* (https://n2t.net/ark:/28722/k2x357324), *Early Helladic II* (https://n2t.net/ark:/28722/k2891n248), *Middle Bronze Age* (https://n2t.net/ark:/28722/k21v5xq7d), and *Late Bronze Age* (https://n2t.net/ark:/28722/k2t444d1g).

35 *Prehistoric* (https://n2t.net/ark:/28722/k2x63xg6j), *Bronze Age* (https://n2t.net/ark:/28722/k25q5bx30), *Early Bronze Age* (https://n2t.net/ark:/28722/k22r4874q), *Late Bronze Age* (https://n2t.net/ark:/28722/k2t444d1g), and *Early Helladic II* (https://n2t.net/ark:/28722/k2891n248).

36 https://n2t.net/ark:/28722/k2qj7vk08

37 https://n2t.net/ark:/28722/k2qj7vk08

38 https://n2t.net/ark:/28722/k2qj7vk08

39 https://n2t.net/ark:/28722/k2ks74r5d

40 Roman (https://n2t.net/ark:/28722/k2b85q477); Standard Method (https://n2t.net/ark:/28722/k2kh10w9f).

41 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).

42 It is possible that some objects dating to the *Protogeometric–Hellenistic*, *Protogeometric–Archaic*, and *Geometric–Archaic* chronotype periods may date to these earliest centuries.

43 *Classical-Hellenistic* (https://n2t.net/ark:/28722/k2v98k29s), *Archaic* (https://n2t.net/ark:/28722/k2058036m).

44 https://n2t.net/ark:/28722/k2ks74r5d

45 https://n2t.net/ark:/28722/k20z7m70h

46 https://n2t.net/ark:/28722/k2ks74r5d

47 https://n2t.net/ark:/28722/k2ks74r5d

48 https://n2t.net/ark:/28722/k2ks74r5d

49 https://n2t.net/ark:/28722/k26q2ct56

50 https://n2t.net/ark:/28722/k26q2ct56

51 https://n2t.net/ark:/28722/k2pn9hr96

52 https://n2t.net/ark:/28722/k2h13fj66

53 https://n2t.net/ark:/28722/k2ks74r5d

54 https://n2t.net/ark:/28722/k2ks74r5d

55 https://n2t.net/ark:/28722/k2ks74r5d

56 *Geometric* (https://n2t.net/ark:/28722/k2qc0fg8f), *Geometric–Archaic* (https://n2t.net/ark:/28722/k2fx7q82v), *Archaic* (https://n2t.net/ark:/28722/k2058036m), and *Classical* (https://n2t.net/ark:/28722/k2h13fj66).

57 https://n2t.net/ark:/28722/k26q2ct56

58 https://n2t.net/ark:/28722/k2ks74r5d

59 *Archaic* (https://n2t.net/ark:/28722/k2058036m), *Classical* (https://n2t.net/ark:/28722/k2h13fj66), *Hellenistic* (https://n2t.net/ark:/28722/k2b570g0c), *Classical-Hellenistic* (https://n2t.net/ark:/28722/k2v98k29s).

60 https://n2t.net/ark:/28722/k2b85q477

61 https://n2t.net/ark:/28722/k2g16dz03

62 EKAS processing team did not use a Middle Roman (AD 150–400) category. I defined one in the process of data refinement because certain chronotypes did not neatly fit into the defined range of Early Roman or Late Roman yet were narrower than the broad Roman period. Such chronotypes include Aegean Red Amphoras, African Red Slip form 50, Vertical Rim Cooking pots, and Çandarli Ware. Because earlier and later Roman periods divide at AD 250, Middle Roman

overlaps with Early Roman and Late Roman. The broad Roman chronotype period was used for objects that could not be dated precisely; I italicize it to distinguish it from the Roman analytical period that includes all individual chronotype periods associated with Roman date. *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

63 *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

64 https://n2t.net/ark:/28722/k2b85q477

65 *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

66 Roman (https://n2t.net/ark:/28722/k2b85q477), *Roman* (https://n2t.net/ark:/28722/k23r1944z), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

67 *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

68 https://n2t.net/ark:/28722/k2b85q477

69 https://n2t.net/ark:/28722/k2b85q477

70 https://n2t.net/ark:/28722/k2b85q477

71 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

72 https://n2t.net/ark:/28722/k27h20x6q

73 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q)

74 Pettegrew 2007 and 2010.

75 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), and *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g).

76 Medieval (https://n2t.net/ark:/28722/k26m3pq5x). A finer-grained review of distributional patterns of the Medieval period is available in Pettegrew and Caraher, 2025.

77 https://n2t.net/ark:/28722/k2kh10w9f

78 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), *Medieval* (https://n2t.net/ark:/28722/k2qj7v85n), *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v), and *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606).

79 *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v), and *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606)

80 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

81 Roman (https://n2t.net/ark:/28722/k2b85q477), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), and Modern (https://n2t.net/ark:/28722/k2g16dz03).
82 Protogeometric-Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), and Modern (https://n2t.net/ark:/28722/k2g16dz03).
83 https://n2t.net/ark:/28722/k26m3pq5x
84 https://n2t.net/ark:/28722/k2tb1j606
85 https://n2t.net/ark:/28722/k2qj7v85n
86 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), and Modern (https://n2t.net/ark:/28722/k2g16dz03).
87 https://n2t.net/ark:/28722/k26m3pq5x
88 https://n2t.net/ark:/28722/k26m3pq5x
89 *Medieval* (https://n2t.net/ark:/28722/k2qj7v85n), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v).
90 https://n2t.net/ark:/28722/k26h5018v
91 https://n2t.net/ark:/28722/k2g16dn5g
92 https://n2t.net/ark:/28722/k2tb1j606
93 https://n2t.net/ark:/28722/k26m3pq5x
94 https://n2t.net/ark:/28722/k26m3pq5x
95 See Sanders 2004 for a discussion of the distorting effects of glazing on the recognition of survey pottery. Sanders describes the increased frequency of glazing on pottery in the twelfth and thirteenth centuries, which corresponds to the pattern of greater quantities of Late Medieval pottery in EKAS.
96 https://n2t.net/ark:/28722/k26m3pq5x
97 https://n2t.net/ark:/28722/k26m3pq5x
98 https://n2t.net/ark:/28722/k26m3pq5x
99 https://n2t.net/ark:/28722/k2g16dn5g
100 https://n2t.net/ark:/28722/k26h5018v
101 https://n2t.net/ark:/28722/k2tb1j606
102 *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v), and *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606)
103 *Medieval-Modern* (https://n2t.net/ark:/28722/k2pk0tc4g), Medieval (https://n2t.net/ark:/28722/k26m3pq5x)
104 https://n2t.net/ark:/28722/k2kh10w9f
105 Modern (https://n2t.net/ark:/28722/k2g16dz03), Isthmia (https://pleiades.stoa.org/places/570316).
106 *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).
107 *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x). Modern artifacts are on average less than 3 meters from units with Modern Present.

108 https://n2t.net/ark:/28722/k2g16dz03
109 https://n2t.net/ark:/28722/k2g16dz03
110 https://n2t.net/ark:/28722/k2g16dz03
111 https://n2t.net/ark:/28722/k2g16dz03
112 https://n2t.net/ark:/28722/k2gx4nc2j
113 https://n2t.net/ark:/28722/k2g16dz03
114 https://n2t.net/ark:/28722/k2g16dz03
115 *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n), *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).
116 https://n2t.net/ark:/28722/k2g16dz03
117 https://n2t.net/ark:/28722/k2g16dz03
118 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), Modern (https://n2t.net/ark:/28722/k2g16dz03).
119 https://n2t.net/ark:/28722/k2g16dz03
120 Fabric (https://n2t.net/ark:/28722/k2v414z0b), Modern (https://n2t.net/ark:/28722/k2g16dz03).
121 Modern (https://n2t.net/ark:/28722/k2g16dz03), *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), and *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).
122 https://n2t.net/ark:/28722/k2g16dz03
123 In 1999, fieldwalkers did flag tiles with finished edges and any tiles that were painted (commonly Classical–Hellenistic), but underflagged tiles generally. Only three Modern tile fragments were flagged—a bare fraction of the hundreds of Modern tiles identified in subsequent field seasons.
124 Mount Oneion (https://pleiades.stoa.org/places/570532), the Rachi Boska Ridge (https://www.geonames.org/12514080/rachi-boska.html), Z1 (https://n2t.net/ark:/28722/k2708h020), Z2 (https://n2t.net/ark:/28722/k2qz2nt5k), Z3 (https://n2t.net/ark:/28722/k2hd8840j), Z4 (https://n2t.net/ark:/28722/k2wq0dh9z), Z5 (https://n2t.net/ark:/28722/k2p560t0k), Z6 (https://n2t.net/ark:/28722/k2kd29w5k), Z7 (https://n2t.net/ark:/28722/k2474t29z), Z8 (https://n2t.net/ark:/28722/k29318549), Z9 (https://n2t.net/ark:/28722/k22j6vf63), Z10 (https://n2t.net/ark:/28722/k2v12fw9v), Z11 (https://n2t.net/ark:/28722/k2mg8262j).
125 https://n2t.net/ark:/28722/k2g16dz03
126 *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x).
127 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477).
128 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).
129 Pettegrew and Caraher, 2025.
130 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v), *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606).

Chapter 12
Period Distributions: Aggregating the Long Term

Landscape archaeologists have no clear roadmap for patterning time from siteless survey data. In site surveys, analysts may attribute time by identifying certain type fossils and recognizing dominant chronological signatures, sensitively examining intrasite variation and discerning occupational biographies.[1] Artifact-level distributional survey, however, offers various approaches for aggregating or layering continuous carpets of objects at different scales of resolution. If all chronotype data has chronological value, one may reclaim chronological information from an entire assemblage, even objects dating to broad eras (e.g., *Ancient* or *Post–Prehistoric*), through different geospatial analysis tools.[2] An analyst may also examine narrower timeframes of a century or two, such as *Late Helladic IIIB* (1320–1190 BC) or *Geometric* (900–700 BC),[3] to create finer-grained views of change in the territory albeit at the risk of small sample size.

This chapter provides an overview of the aggregate distributions of cultural remains in the EKAS region from prehistory to the modern day and considers broad changes over time and space. In an earlier part of this work (Ch. 10), I outlined the general patterns in the *total density* of objects in the region based on a count of objects and object classes observed in survey. Here my aim is to characterize general chronological artifact patterns based on the project's sample of chronotypes. The goal, in other words, is to begin to disentangle the continuous carpet of objects in the surveyed eastern Corinthia by examining aggregate patterns of units, zones, and extent of material for the broad analytical periods (Section 11.1). I also want to note some categories that analysts may want to consider when reusing EKAS data to interpret time from the sampled artifact assemblages.

In the discussion below, I will examine time at a middle threshold between very broad and very narrow periods. My objective is to describe the general forest of distributions by examining the regional patterns for the five analytical periods—namely, Prehistoric, Protogeometric–Hellenistic, Roman, Medieval, and Modern.[4] Evaluating an analytical period such as Roman (31 BC–AD 700), for example, combines the chronotype periods of *Early Roman* (31 BC–AD 250), *Middle Roman* (AD 150–400), *Late Roman* (AD 250–700), and *Roman* (31 BC–AD 700) into a single inclusive category.[5] The advantages of such an approach are obvious: it incorporates a significantly larger class of material than would be possible by focusing only on a narrow period, and it averages out distortions caused by small sample size. Granted, focusing on broad analytical periods still ignores nearly 70% of the EKAS assemblage—those objects of broad chronotype periods spanning about 2,000 years or more—but offers a compromise in providing a big picture view of the areas of importance at different points in time.

12.1. Terms of Analysis

At the start, the reader should be aware of the parameters and terms of analysis. First, my comparative computation of densities centers on material documented through distributional survey and not recorded data from LOCAs, features, and other data sets. I have focused on the distributional data alone because it affords an even comparison of material that was collected with similar methods. As I noted in the introduction (Section 1.3), my aim has not been to write a synthesis—a difficult work that would entail the integration of many kinds of sources—but to produce a focused and critical first-order analysis of data collected through standard survey units. The final chapter (Ch. 14) will show examples of how we might integrate varied evidence such as artifacts recorded in Discovery Units, artifacts collected in gridded LOCAs, architectural features, and a wider range of archaeological and non-archaeological information to write histories of the Corinthia.

This chapter, rather, will focus on telling the history of the landscape in the broad terms of overarching analytical periods. Thus, I will consider each broad analytical period inclusively, incorporating the finds of all chronotype periods that fall within its time frame while excluding chronotype periods that overlap with another analytical period.[6]

> *Period Density:* This term refers to the density of an analytical period based on the count of objects identified through standard methods and units divided by the area sampled.[7] The period

density calibrates for the percentage of the unit sampled and multiplies by 10,000 to generate a whole number (Cf. Section 7.2). It corrects for differences in visibility according to the simple technique of multiplying density value by a factor of 1 divided by the fraction of the ground visible (Section 9.3). Period density, in short, estimates the total number of artifacts of a period, given as a value per hectare and calibrated for the percentage of a unit sampled and surface visible. I will present period density at two levels: a) the top 25 densest Discovery Units for each broad analytical period, and b) the 50 standard zones of the survey, which are assigned a quintile ranking of densities based on an aggregate of the weighted period density of each survey unit. The former will be a basis to compare the densest units of each broad period with other periods, LOCAs (Ch. 6), and the densest overall units of the survey area based on total counts (Section 10.3); the latter offers a way to quickly appraise the structure of density for each period.

Presence or Absence: While this discussion will focus largely on period densities based on artifacts identified through chronotype sampling in standard units, I will consider all kinds of survey units and all kinds of sampling strategies in discussing the presence or absence of material of a period in different zones. In other words, the absence of material of an analytical period from a unit or zone in the density maps of this chapter probably does not in most cases reflect actual absence (cf. Section 11.1 and 14.1). In fact, I have often noted in EKAS that grab sampling or other intensive forms of investigation (e.g., LOCA investigations) can yield Prehistoric, Protogeometric–Hellenistic, Roman, Medieval, or Modern objects that went undetected through standard pedestrian survey using chronotype sampling.[8] I will incorporate non-standard artifacts into discussions of the presence or absence of an analytical period.

Period Extent: Besides density, I will provide a summary of the extent of area covered by each period in order to establish the minimum spread of material over the landscape. The extent is simply based on the aggregate value of the surface area of survey units that contain material of the period. In reality, of course, artifacts are often highly localized concentrations within their units: the extent of each period does not mean that the artifacts of that period were distributed over the whole unit but provides a way of roughly visualizing distribution. The limits of our sample mean that this estimation of period extent is the minimum; in many cases, we can assume that material of some periods (e.g., Medieval) went undetected in the landscape for reasons we've discussed.

Weighted Average Elevation: To provide an estimate of the relationship of broad periods to elevation above sea level, I have assigned an average value of elevation per artifact of each period. To produce a weighted average elevation value, I multiplied the average elevation of each zone by the total number of objects of the analytical period found in that zone, added together all the values for all other zones, and then divided by the total number of objects of the period to get an average value per sherd for the survey territory. Summing these weighted values represents an aggregate of the average elevation. This approach attempts to find weight based on quantity of material, assuming that 100 Roman artifacts found at, say, 75 meters above sea level, should be worth more than 3 Roman artifacts found at 500 masl.[9] Weighting, in other words, assigns value to the quantities of material in each zone and gives a view of the relative difference of elevation per period.

Mean Center Analysis: This overview makes use of mean center analysis, a GIS tool, to provide a view of changing spatial distributions over time. *Mean center analysis* establishes the notional center, or average point, of all x and y values of the centroids of all Discovery Units containing material of the examined period. I will calculate mean center by simply analyzing the presence or absence of units that contain objects of that period, a technique that assesses the spatial distribution of units of a certain period regardless of its density values. The value of mean center analysis is that it provides a way of describing and comparing the distribution of the analytical periods to one another, as well as to the EKAS survey units as a whole.

Average nearest neighbor analysis: This GIS tool can create an estimate of whether a distribution is clustered, dispersed, or random, and will aid in estimating a value of the average distance between units of that period. I will use this tool to assess the average distances between the 25 densest units of each period. The tool will provide a view of the degree of clustering of the hotspots in an analytical period.

Hyperlinks: I have used hyperlinks in Chapter 12 and Chapter 13 to aid the reader. Hyperlinks to less familiar toponyms and places will redirect to Pleiades or Geonames to show location.

Period hyperlinks will redirect to the collection of items at Open Context associated with that analytical or chronotype period. Hyperlinked references to zones will pull up records at Open Context associated with zones of the period under discussion. Thus, a reference to Z32 in Section 12.2 (which deals with the Prehistoric period) will pull up all prehistoric records found in Zone 32 while a reference to Z32 in Section 12.3 (which treats the Protogeometric–Hellenistic period) will draw up Protogeometric–Hellenistic items. In some cases, I have hyperlinked to groups of zones such as Prehistoric items associated with "the zones of Gonia, Yiriza, and Yiriza South."[10]

Reader, Beware: The goal of the discussion is to provide a concise overview of the survey region's units and zones that were most important from one broad period to the next. But "extrapolation," as Attema et al. have noted, "can be dangerous."[11] I have repeatedly discussed the various ways that method restricted sample. Because intensive survey coverage was patchy and incomplete, never representing much more than 1% of the entire eastern Corinthia, we know that our sample was too small to provide anything close to full accuracy (Section 14.1). The survey and discovery of artifacts and features in areas that we did not examine necessarily affect some of the analyses above, including weighted average elevation, mean center, and average neighbor. Although I am confident in the general patterns as an index of dominant processes (e.g., strong Roman orientation to the Isthmus over the southern territory),[12] the analyses are admittedly only our best estimates of the broad patterns in period distributions over time based on areas sampled. They invite further fieldwork, and more complex reanalysis and interpretation through a wide array of textual, epigraphical, archaeological, and environmental evidence.[13] Accepting this caveat that we do not really know what we do not know, I turn now to a description of the surface materials in the eastern Corinthia, beginning with Prehistory.

12.2. Prehistoric Distributions

The Prehistoric period distributions documented by EKAS are highly nucleated settlement zones surrounded by very low offsite densities. Although prehistoric artifacts are relatively numerous overall in comparison with other periods (Section 11.2), they concentrate at a few places on the Isthmus and southern territory and often produce evidence of repeated occupation from *Neolithic* times to the *Late Bronze Age*.[14] Yet, there is some variation in the density of individual chronotype

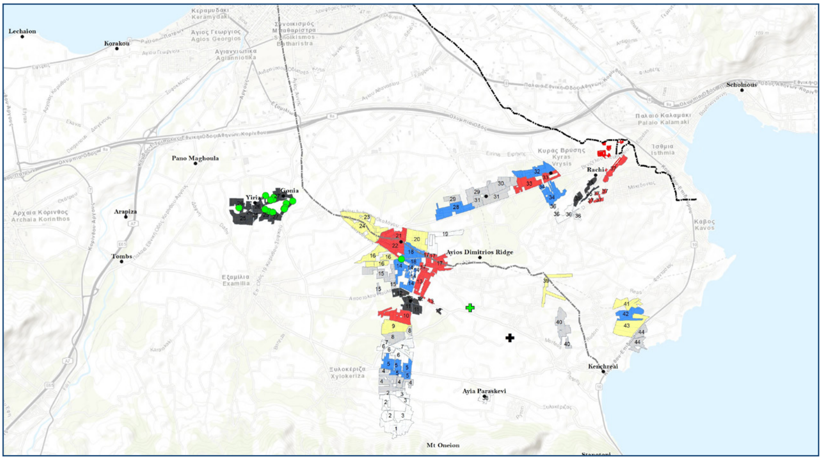


Figure 12.1. Prehistoric distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray, No Artifacts: White. Green dots represent the 25 densest Prehistoric units, green cross the mean center of Prehistoric unit distributions, and the black cross the mean center of all EKAS survey units.

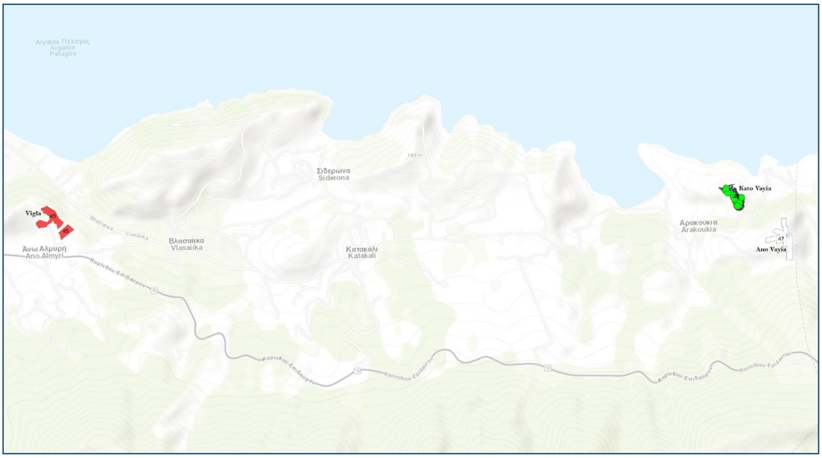


Figure 12.2. Prehistoric distributions at Vigla and Vayia (Z45, Z46, and Z47) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray, No Artifacts: White. Green dots represent 25 densest Prehistoric units.

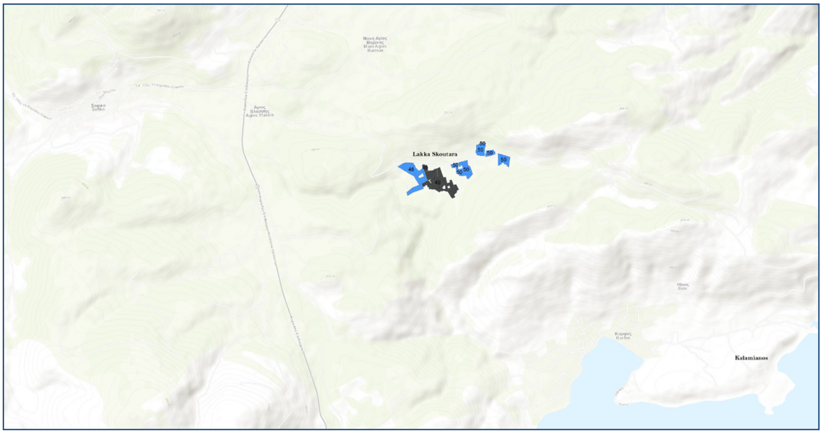


Figure 12.3. Prehistoric distributions at Lakka Skoutara (Z48, Z49, and Z50) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray.

periods that must be teased out with finer-tuned analysis alongside the recorded features and other classes of artifacts (e.g., obsidian bladelets) currently assigned to broader chronotype periods. The brief overview here will consider long-term patterns evident in the analysis of all 24 prehistoric chronotype periods collectively.

Prehistoric artifacts were found over a relatively small part of the survey area when compared to those of other broad periods.[15] About 288 standard units detected prehistoric pottery through chronotype sampling, or about 1 out of every 5 standard survey units (22%) in the EKAS survey.[16] These units covered about 0.85 km^2 of a total area of 3.7 km^2, a value over double those of the Medieval period but significantly less than those of other analytical periods.[17] Most of the survey region's zones (41/50) had prehistoric pottery, but only 9 zones generated more than twenty prehistoric artifacts through standard sampling procedures and only 5 zones generated more than 100 artifacts. The fact that the quantity of objects counted per zone ranged from 1 to 810 with a median value of 4 is an indication of the discrete and concentrated character of the prehistoric period in the EKAS region. The zone of Gonia (Z25) alone generated more objects (810) than 39 other zones combined.[18] Unlike later periods, Prehistoric objects do not form a continuous carpet but only concentrate in highly localized nuclei with surrounding low-density haloes.[19]

The Prehistoric pattern is characterized largely by larger aggregations of artifacts distributed across both the Isthmus and the southeastern territory (Figure 12.1, 12.2, 12.3).[20] Indeed, the findings of the Eastern Korinthia Survey and the subsequent work of the Saronic Harbors Archaeological Project at Bronze Age Kalamianos have called into question an older view that interpreted Corinth and the Isthmus as a major regional orientating point during the Late Bronze Age (Section 4.2.1).[21] The EKAS distributional patterns point to a few nucleated settlements scattered across the eastern Corinthia, separated from one another by several kilometers, and as equally visible in the south as on the Isthmus.[22] Some 82% of the zones of the Isthmus and 19% of standard survey units generated pottery of the era,[23] while 45% of standard survey units south of Mount Oneion and 5 out of 6 zones produced prehistoric objects.[24] The relative importance of Gonia is attested in the following two patterns: the mean center for the prehistoric period as a whole falls on the Isthmus about 800 meters west-northwest of the mean center for all standard survey units, and the overall average weighted zonal elevation for prehistoric material in EKAS is low (90.2 masl). Both patterns indicate that prehistoric material was weighted toward the low-lying districts of the Isthmus.

Given the history of archaeological research at the prehistoric settlements of the Isthmus, it should come as no surprise that the distribution of Prehistoric artifacts is substantial. Three areas dominate prehistoric horizons.[25] The prominent ones are the zones of Gonia, Yiriza, and Yiriza South (Z25, Z26, Z27),[26] which collectively generated 1,200 Prehistoric artifacts (Early Neolithic–Late Bronze Age) through standard units and sampling strategies and putative prehistoric density levels of 157–618 artifacts per hectare.[27] The Rachi ridge near Isthmia (Z35) also yielded a substantial count of Prehistoric artifacts (n=103), especially *Late Bronze Age* artifacts, but also traces of *Early Helladic II* and *Middle Helladic–Late Helladic I*.[28] The zone has a very high density (165 artifacts per hectare), while surrounding zones (Z32, Z33, Z34, Z37) produced consistent prehistoric signatures at off-site levels (counts: 3–15 artifacts, putative density: 3–13 artifacts per hectare).[29] A third important area lay in two zones near the Rachi Boska Ridge, one on the ridge itself (Z10), the other on the slopes below (Z12);[30] survey in these two zones revealed putative artifact densities, respectively, of 24 and 49 artifacts per hectare. All other zones of the Isthmus associated with prehistoric artifacts yielded relatively low counts of 15 or fewer artifacts.[31]

The zones of the southern territory produced an impressive signature of prehistoric pottery.[32] The most important zone documented by EKAS lay in the coastal zone of Kato Vayia (Z46) above Lychnari Bay.[33] The application of standard methods in this zone recorded cairns and building remains and 145 artifacts, giving the highest Prehistoric putative density value for the entire survey area, 834 artifacts per hectare. The publication of Kato Vayia has particularly drawn attention to the *Early Helladic II* remains (Section 4.2.1);[34] *Early Neolithic*, *Final Neolithic–Early Helladic I*, and *Late Bronze Age* objects are also present.[35] Field teams recorded a second highly localized cluster in the southeast at Lakka Skoutara Central (Z49), where 39 Prehistoric artifacts (mostly *Final Neolithic* to *Early Bronze Age*, but also with trace amounts of *Middle Helladic–Late Helladic*) represent a putative density value of 58 artifacts per hectare;[36] the surrounding zones yielded low-density values. A third concentration of materials lay at the coastal ridgetop of Vigla near Almyri (Z45): 11 prehistoric artifacts dating to the Early Bronze Age and Late Bronze Age suggest density values of 45 artifacts per hectare. [37]

The 25 densest Prehistoric units attest to a pattern of nucleation.[38] Over half of them (n=13) fall in a ring around the zones of Gonia (Z25) and Yiriza (Z26, Z27).[39] Most of the rest of them (n=11) fall around Kato Vayia.[40] The only exception is a survey unit (1005) in Kromna Southeast (Z18),[41] which produces a strong putative density value. Average nearest neighbor analysis of the densest units suggests a clustered pattern with a mean distance of only 132 meters between them. All but one (Unit 1005) of the survey units are found in zones with top quintile Prehistoric densities.[42]

The top 25 units also show a very close relationship to the project's defined set of sites. Half of these units overlap with or fall adjacent to defined LOCAs: near analysis indicates that the mean distance of the top 25 units to defined LOCAs is 79 meters, and the median distance is 16 meters. Some 80% of the units (20/25) overlie or lie adjacent to units in the top 10% of total artifact density (top decile *total density units*) and 64% to top decile *stratified density units*. Near analysis shows a direct overlap in the vast majority of instances: the average (mean) distance between top 25 units and *total density units* is less than 20 meters and the median distance is 0 meters. The clusters of Prehistoric artifacts in the survey evidently had a persistent influence on the definition of LOCAs in the survey and also contributed consistently to the total density of the highest density units in the region.[43]

12.3. Protogeometric–Hellenistic Distributions

The Protogeometric–Hellenistic period is one of the most visible and robust in surface distributions of the eastern Corinthia, because it is highly visible and identifiable (Section 11.3) and because EKAS

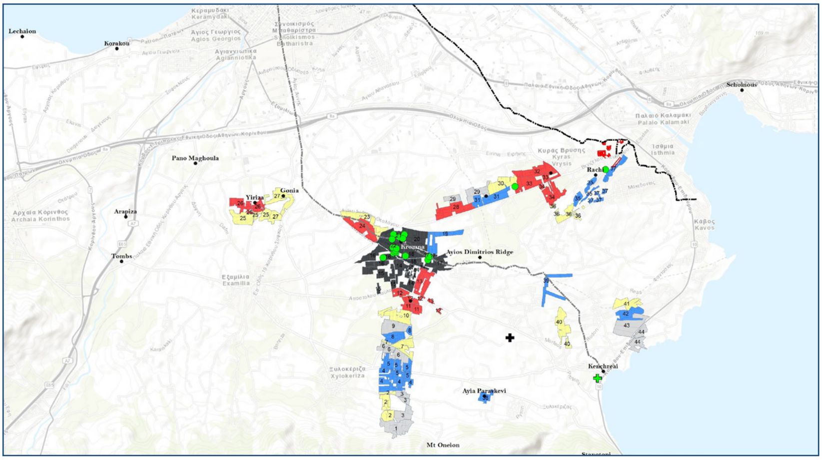


Figure 12.4. Protogeometric–Hellenistic distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest PG–HE units, green cross the mean center of PG–HE unit distributions, and the black cross the mean center of all EKAS survey units.

Figure 12.5. Protogeometric–Hellenistic distributions at Vigla and Vayia (Z45, Z46, and Z47) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest PG–HE units.

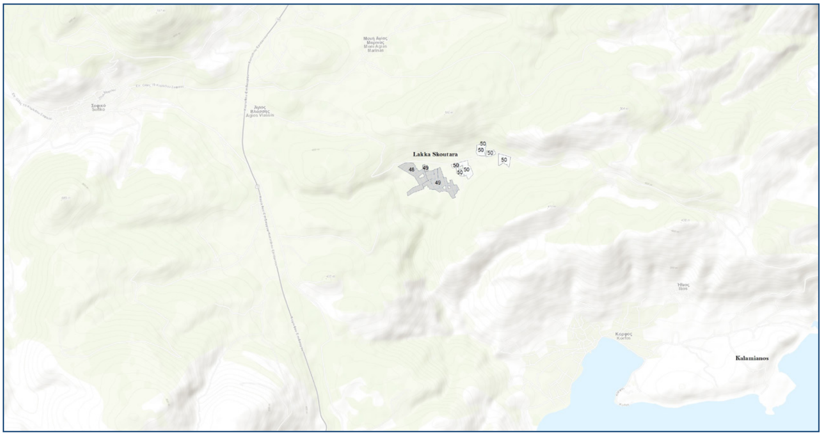


Figure 12.6. Protogeometric–Hellenistic distributions at Lakka Skoutara (Z48–Z50) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray, No Artifacts: White.

teams dedicated resources to documenting it through LOCA gridded collections.[44] Viewed as an aggregate of all 11 chronotype periods, the Protogeometric–Hellenistic period distributions are marked by a stability of occupation in particular zones and districts.[45] However, since variations in the patterns of specific chronotype periods exist (*Archaic* vs. *Classical* vs. *Hellenistic*, for example),[46] further fine-grained analyses are necessary to parse the distributions to narrower periods contextualized in terms of other archaeological evidence.

Traces of the Protogeometric–Hellenistic period were distributed across all parts of the survey region.[47] EKAS teams documented objects in 60% of standard survey units (773/1287)—a nearly identical number to the Roman period.[48] These units covered an area of 2.7 km^2, which represents 75% of the total area covered by standard Discovery Units. Field teams documented artifacts of this analytical period in every survey zone except for one (Lakka Skoutara East in the southeastern Corinthia) through various sampling strategies. Every area of the surveyed territory, then, produced some material of this period. Like the Prehistoric period, quantities varied widely between zones, with counts ranging from 1 to 391; the median count of 63, however, was much higher.[49]

Protogeometric–Hellenistic patterning is different than Prehistoric in that it is characterized by the dominance of major nuclei within a more continuous carpet of moderate to high artifact counts and densities (at least on the Isthmus) (Figure 12.4, 12.5, 12.6). Material of this broad analytical period was found in all zones of the Isthmus and 58% (647/1122) of the standard survey units there,[50] and in all zones of the southeast region except for Lakka Skoutara East;[51] Protogeometric–Hellenistic material was found in 76% (126/165) of units in the southeast.[52] The very densest areas fell at Ano Vayia (Z47) and Vigla in the southeast, the corridor of Kromna-Perdikaria, and the neighborhood west of Isthmia.[53] The relative importance of both the Isthmus and southeast territory is evident in a mean center that falls near Kenchreai on the far southeastern end of the Isthmus, about 1.5 km east of the mean center for the survey units as a whole. The relatively high average zonal elevation (133.5 masl) as compared to the Prehistoric era also points to the occupation of higher zones in the hilly southern districts.[54]

On the Isthmus, two important areas stand out in the PG–HE period. The densest and most extensive scatter occurs in the zones of Kromna-Perdikaria between the Rachi Boska ridge and the line of quarries near Examilia Village.[55] Eight of the 10 densest (top quintile) PG–HE zones fall in this area, and these zones (Z14, Z15, Z16, Z17, Z18, Z20, Z21, Z22) produced close to 50% of all Protogeometric–Hellenistic artifacts documented through standard units and chronotype sampling (counts of artifacts per zone ranged from 102 to 391 artifacts).[56] This corridor marks an extensive district of settlement, sanctuaries, and cemeteries that developed as early as *Geometric* to *Archaic* times at a central crossroads location on the Isthmus.[57] Its access to good agricultural land, limestone quarries, proximal harbors (Kenchreai, Schoinous, and Lechaion), sanctuaries and markets (at Corinth and Isthmia), and major corridors contributed to its flourishing.[58] One of the most important factors that shaped its history from early Hellenistic times, if not before, was its location at one of the region's most important gates through the trans-Isthmus fortification wall (Section 4.2.2).[59]

The second substantial area on the Isthmus was the Panhellenic sanctuary at Isthmia,[60] one of the most important hubs in the region outside of Corinth in the Protogeometric–Hellenistic period.[61] The zones west of Kyras Vrysi (Z32, Z33, Z34), which overlapped the West Cemetery, probably represent settlement and cemeteries that grew on the outskirts of the Sanctuary of Poseidon that lay a kilometer to the east.[62] The putative density of these zones (132–152 artifacts per hectare) were not as high as at the zones at Kromna (152–548 artifacts per hectare) but survey still yielded modest counts (108–142 total artifacts collected).[63]

Besides Isthmia and Kromna,[64] other zones on the Isthmus yielded PG–HE artifacts at levels between 2 and 118 artifacts per hectare. The median zonal density of 63 artifacts per hectare is an indication of the substantial quantity of material of Protogeometric–Hellenistic date.[65] Of course, much of this continuous carpet represents an aggregation of multiple narrower periods, and any future analysis must break down the carpet into its narrower periods. Previous efforts, for example, have drawn attention to the shifting settlement patterns around Kromna between the *Archaic* age and *Hellenistic* times.[66]

In the south, Protogeometric–Hellenistic material is more concentrated, especially in zones at Ano Vayia (Z47) and Vigla (Z45).[67] The former was associated with a farmstead and tower of *Classical–Hellenistic* times that overlooked an important embayment and strategic corridor along the Saronic coast.[68] Although surface visibility was poor at Ano Vayia, investigations still recorded a count of 72 Protogeometric–Hellenistic objects through standard DU survey methods and 159 artifacts via all methods.[69] When visibility and unit size are factored in, this zone (Z47) has the highest putative density value for the overall survey area (616 artifacts per hectare).[70] Densities were lower at nearby Kato Vayia (Z46) where survey yielded only 14 Protogeometric–Hellenistic artifacts, but this area has extensive fortification walls that circumvent the peninsula and are contemporary with the farmstead and tower.[71] The ridgetop of Vigla (Z45) lies about 5.5 km west of Ano Vayia (also on the Saronic coast) and is also associated with a robust surface signature of Archaic–Hellenistic fine ware, kitchen ware, pithos, beehives, amphorae, and tiles.[72] The density of Greek-period objects here is the third highest in the survey region. Because of the diachronic character of the surface debris, the area needs further study, but it is feasible that some of the stone piles and walls documented across the ridge and hill are Archaic–Hellenistic in date. The southernmost survey zones in the inland valley of Lakka Skoutara (Z48–Z50), in contrast, produced very few objects (n=15 total) of Protogeometric–Hellenistic date through standard DU survey methods.[73] That contrast suggests more limited occupation in the remote southeast compared to the Isthmus.

An analysis of the locations of the 25 densest Protogeometric–Hellenistic units supports the preceding discussion of zonal densities. Some 60% of the units (15/25) fall in the heart of Kromna in the vicinity of the Examilia Quarries.[74] Another 2 are located in isolated units south and west of the Isthmian sanctuary. The others are in the southern Corinthia at Ano Vayia (4), Kato Vayia (2), and Vigla (2). Some 84%

of these units (21/25) overlap directly with a zone in the top quintile for Protogeometric–Hellenistic density, while 16% are located in a second quintile or third quintile zone.[75] Average nearest neighbor analysis of the top 25 units indicates clustering with a mean inter-unit distance of 183 meters (compare with Prehistoric, 132 m; and Roman, 229 m).[76]

The densest units of Protogeometric–Hellenistic date correlate very closely with EKAS' defined sites and high-density units.[77] The top 25 units overlap with or lie adjacent to LOCAs in 80% of cases (20/25) and near analysis shows that average distance of these units to LOCAs is less than 15 meters (mean: 14 meters, median: 0 meters). High Protogeometric–Hellenistic densities were evidently a strong trigger for defining LOCAs in the region.[78] About 64% of the units (16/25) overlie or lie adjacent to units in the top 10% of total artifact density (top decile *total density units*) and 72% to top decile *stratified density units*. In the majority of instances, near analysis shows a direct overlap: the median distance between the top 25 units and the densest units overall is 0 meters, and the mean distance is less than 5 meters after outliers are excluded through IQR method. Like the Prehistoric period, the highly visible Protogeometric–Hellenistic clusters contributed consistently to the definition of LOCAs and the total density values of the highest density units in the region.[79]

12.4. Roman Distributions

In the eastern Corinthia, Roman material is as pervasive as it is abundant.[80] Broken fragments of amphoras and storage vessels, table wares, and kitchenware, among other classes, litter a majority of the units surveyed by field teams. The distribution of these objects, however, fluctuates across space (units and zones) and time (sub-periods), reflecting patterns in the intensity of land use and settlement within and between the survey zones over a span of eight hundred years. Corinthians inhabited most of the landscape at *some point* between the first century BC and seventh century AD but clearly inhabited some districts more than others over time. My overview will consider long-term patterns as evident in the collective analysis of all Roman chronotype periods (*Early Roman*, *Middle Roman*, *Late Roman*, and *Roman*).[81]

Material of broad Roman date was found in all parts of the survey areas.[82] Some 60% of standard survey units (778/1287) in the eastern Corinthia generated Roman material and these units collectively covered an area of 2.8 km^2 (or, 75% of the total area of 3.7 km^2 covered by standard Discovery Units).[83] Teams recorded Roman artifacts in all 50 survey zones by using chronotype survey procedures (identifying

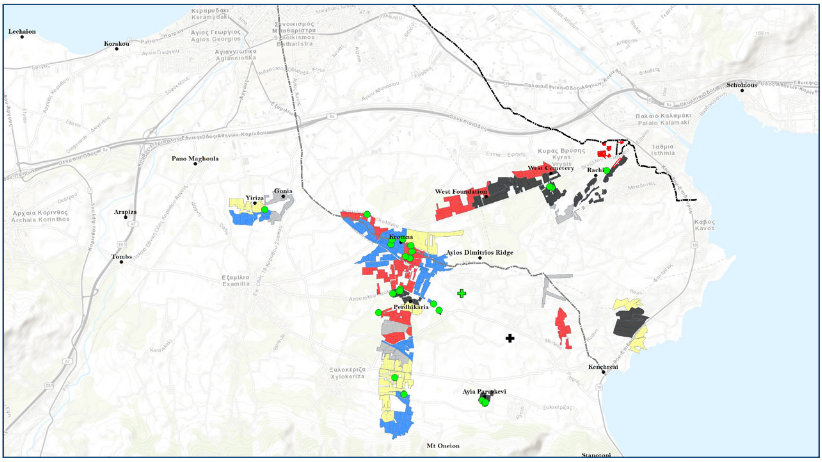


Figure 12.7. Roman distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest units, green cross the mean center of Roman unit distributions, and the black cross the mean center of all EKAS survey units.

Figure 12.8. Roman distributions at Vigla and Vayia (Z45, Z46, Z47), showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray, No Artifacts: White.

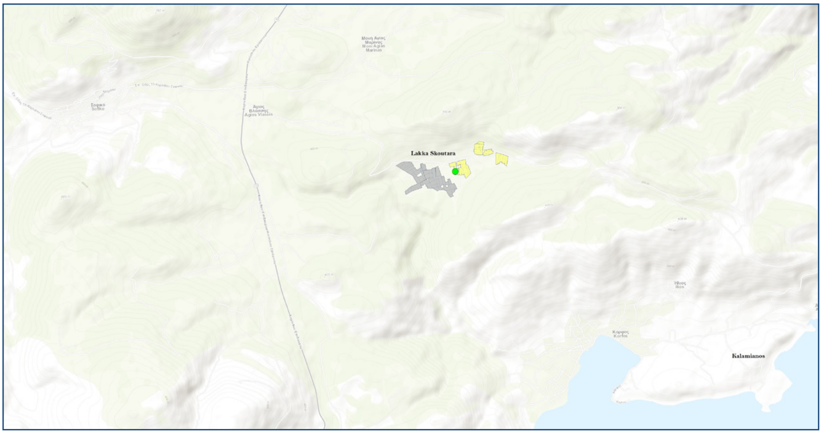


Figure 12.9. Roman distributions at Lakka Skoutara (Z48, Z49, and Z50) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray, No Artifacts: White. Green dots represent 25 densest units.

via chronotype or grab) or other kinds of methods.[84] There was not a single block of the eastern Corinthia that did not produce at least 1 item of Roman date during survey or in subsequent revisits. All zones previously inhabited in earlier periods saw some reuse—however limited or intensive—in the Roman period.[85] A consistent signature is the elevated counts and densities across most zones, with counts ranging from 3 to 257, putative density from 8 to 458, and a median count of 77 Roman artifacts per hectare.[86] The distribution of the Roman period suggests a clear and continuous high-density carpet of objects.

Of course, Roman artifacts were concentrated in different ways across the surveyed territory, with the starkest differences between the central corridor and the southeastern Corinthia (Figure 12.7, 12.8, 12.9). Two thirds of standard survey units and all zones of the Isthmus (747/1122) generated artifacts of this period, but less than 20% of standard units south of Mount Oneion (32/165) generated similar artifacts.[87] Roman material was present in all zones of the southern region but notably less abundant: the 6 zones of Vayia (Z46 and Z47), Vigla (Z45), and Lakka Skoutara (Z48, Z49, and Z50) rank among the 12 least-dense zones of the entire territory even when corrected for surface visibility;[88] indeed, 4 zones (Z45, Z46, Z47, Z48) generated only 10 Roman artifacts between them through standard chronotype survey, which ranked them as EKAS's least-dense Roman areas.[89] The average Roman zonal density for EKAS as a whole was 25–70 times greater than in these 4 zones.

The close association between Roman remains and the Isthmus is evident through an analysis of both mean center and average weighted elevation. Mean center analysis shows that the middle point of all units with Roman pottery falls right in the middle of the survey units on the Isthmus just to the east of Rachi Boska and 1.1 km northwest of the mean center for all standard Discovery Units;[90] the mean centers of all chronotype periods of the Roman period are, in fact, remarkably consistent, and fall in about the same location.[91] The average weighted elevation for Roman material is the second lowest of the analytical periods, ca. 101 meters above sea level (weighted by zone) which approximates the median elevation for all standard and non-standard survey zones (median: 104 masl).[92] Both analyses point to a Roman preference for occupation within the lower elevations of the Isthmus.[93]

If Roman remains were not as abundant in the southeastern Corinthia, they were also not as extensive. While, on average, 71% of the survey units of each zone on the Isthmus yielded Roman objects, only a quarter of the units of each zone in the southeastern Corinthia did. Vigla and the zones of Vayia (Z46 and Z47) had few units with Roman pottery (marking only 6% of all units in those regions), despite the impressive densities of artifacts and architecture of earlier periods in these areas (91% of the units in these zones generated artifacts).[94] Survey of the 3 zones of Lakka Skoutara (Z48, Z49, and Z50) yielded a more robust assemblage, but only 30% of units in the valley (26/88) produced Roman material, even though artifacts were documented in over 80% of units (71/88).[95] In the broadest terms, Roman land use and settlement over 8 centuries centered in the lowland plateau of the Isthmus rather than within the southern territory, and Roman-period occupation in the south tended to be more clustered.

The Isthmus shows notable differences in amount and extent of Roman material. The densest zones (top quintile) form a ring around Isthmia. Almost all these zones and those along the Corinth-Isthmia road (Z30, Z31, Z32, Z33, Z34, Z35, Z36, Z37) ranked in the top 2 quintiles for zonal density;[96] 6 of the 10 densest Roman zones lie in this area. A second important area was the district of Kenchreai (Z40, Z42, Z43), especially the plateau north of the harbor (Z42, Panorama South, the second densest of 50 zones) which probably had a Roman villa;[97] the hilly area to its south (Z43, Kenchreai Gullies, ranked 10/50) along an upper road to Isthmia;[98] and agricultural fields 1 km northwest of the harbor (Z40, Kenchreai Northwest, ranked 15/50).[99] A third important area, Ayia Paraskevi (Z38), lies below the lower slopes of Mount Oneion two kilometers west of Kenchreai harbor, probably close to the southern road to Kenchreai;[100] this was the very densest zone for Roman artifacts in the survey.[101] A final area of exceptional density was Zone 12 just below the lower slopes of Rachi Boska, a district clearly associated with Roman to Medieval buildings that probably formed part of a villa and church complex.[102]

A consideration of the 25 densest Roman units adds texture to this picture. Nearly all of the 25 densest units are on the Isthmus. The single exception in the southern territory is a unit in the valley of Lakka Skoutara, which is a reminder that Corinthians exploited and inhabited districts far distant from Corinth in this period, even if not with the same intensity or duration as on the Isthmus. The 24 highest-density Roman units on the Isthmus tend toward clustering: average nearest neighbor analysis of the densest units suggests a clustered pattern with a mean distance of about 229 meters between them. About half of the top 25 are located in zones with top quintile Roman density, such as the fields below Rachi Boska (Z12), Ayia Paraskevi (Z38), and zones around Isthmia (Z34 and Z37).[103] The rest are situated in zones with above average to middling densities for the Roman period—such as near Gonia (Z25), Boulberi (Z23), Kromna and Kesimia (Z18, Z19, Z20, Z21, Z22), and the lower slopes of Mount Oneion (Z3).[104] The only exception is a unit in Xylokeriza East (Z4), a zone with below average Roman density.[105]

The 25 densest Roman units have a very close spatial correlation to defined sites (LOCAs) in the project. Nearly two-thirds (n=16/25) of them are located directly over or immediately adjacent to defined LOCAs: near analysis shows that, between a top density Roman unit and a LOCA, the mean distance is only 36 meters and the median distance is 0 meters.[106] Moreover, 76% of these units (19/25) overlap with (or nearly overlap with) units in the top 10% of total artifact density (either top decile *total density units* or *stratified density units*). Near analysis shows a direct overlap in the vast majority of instances, with the average (mean) distance between Roman top-25 units and densest overall units less than 25 meters.[107] Given the very close relationship between units with exceptional Roman density on the one hand and units with overall density on the other, we can conclude that the Roman carpet of objects was itself a major contributing factor to both the total density of objects in the landscape and a perception of the densest LOCAs during survey (Ch. 6).[108]

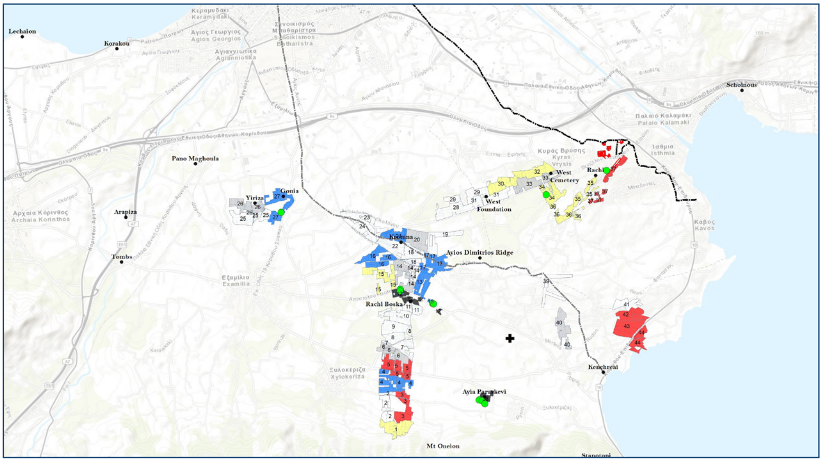


Figure 12.10. Medieval distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest Medieval units and the black cross the mean center of all EKAS survey units. The mean center of Medieval unit distributions lies to the southeast of the visible map.

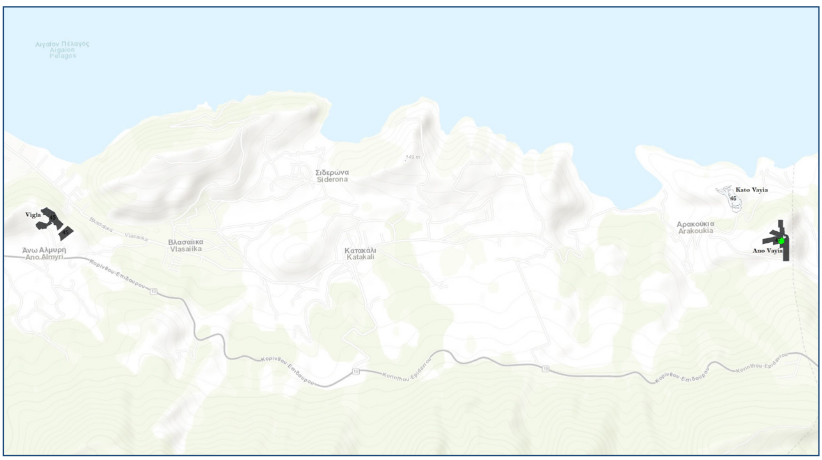


Figure 12.11. Medieval distributions at Vigla and Ano Vayia (Z45 and Z47) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray, No Artifacts: White. Green dots represent 25 densest Medieval units.

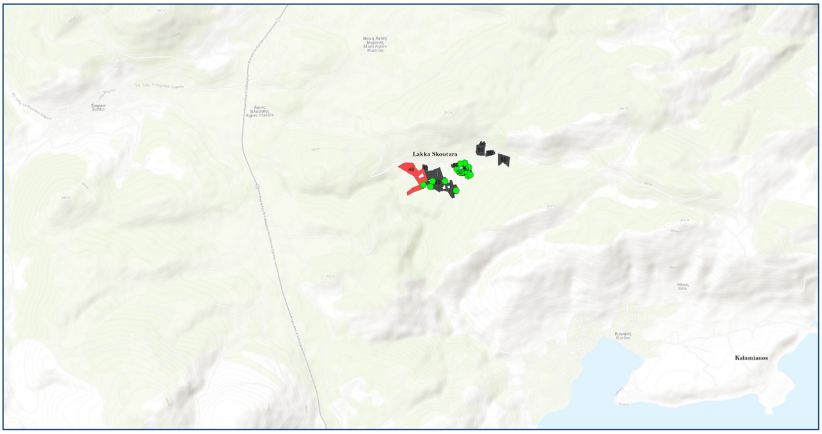


Figure 12.12. Medieval distributions at Lakka Skoutara (Z48, Z49, and Z50) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest Medieval units.

12.5. Medieval Distributions

In comparison with the Roman period, Medieval distributions in the survey territory are scarce.[109] I have already noted (Section 11.5) that the Medieval period produced a small assemblage (n=322) that represents just 5.5% of the quantity of material of Roman date. The paucity and low visibility of the Medieval period in comparison with earlier periods makes it all the more challenging to know how patterns of distribution reflect true presence or absence of habitation of this period.[110] This overview will look at these patterns as an aggregate of 4 chronotype periods: *Early Medieval*, *Late Medieval*, *Ottoman/Venetian*, and *Medieval*.[111]

Medieval objects are found in most parts of the region but are thinner on the ground than those of other periods, in part, for reasons discussed in the last chapter (Section 11.5). About 8% of standard survey units (n=96/1287) produced objects of Medieval date, covering a total area of only .34 km^2 (contrast with Roman period values: 60% and 2.8 km^2).[112] Teams recorded Medieval objects in two-thirds (34/50) of the zones of the survey region.[113] Thus, while some entire zones lacked objects, most areas generated at least a few traces. Nonetheless, zonal densities were consistently low across the entire region. Counts of Medieval objects ranged from 1–109 artifacts and densities from 1–139 artifacts per hectare, but the median value in either case was

2–3. Only 4 zones produced really substantial Medieval counts: Lakka Skoutara East (Z50, n=109), Lakka Skoutara Central (Z49, n=40), Ayia Paraskevi (Z38, n=26), and the fields below Rachi Boska (Z12, n=15).[114] The overall pattern of Medieval distributions,[115] then, is nucleated, but its lower visibility in the landscape (Section 11.5) obviously affects our ability to see.

In contrast with the broad Roman period, Medieval habitation across the survey region was not clearly oriented toward the Isthmus (Figure 12.10, 12.11, 12.12).[116] Considered collectively, the Medieval signature in the zones of the southeast territory was as robust as the zones of the Isthmus.[117] Only 6% of the units on the Isthmus generated Medieval pottery (n=65/1122) and these covered a total area of 0.25 km^2; a significantly greater share of the standard units of the southeast territory (22%, n=36/165) yielded Medieval remains and these covered a total area of 0.10 km^2.[118] In the southeast territory, 5 of the 6 zones produced some Medieval objects, and these 5 zones were in the top 7 densest Medieval zones of the survey and ranked in the first or second quintile for density. Only 2 of the 6 zones that number in the top quintile for density of this period fell on the Isthmus: Rachi Boska Lower Slopes (Z12) and Ayia Paraskevi (Z38).[119] The very densest zones fell in the southern Corinthia at the hilltops of Vigla (Z45) and Ano Vayia (Z47) and 2 zones (Z49 and Z50) in the mountain valley of Lakka Skoutara.[120]

The greater presence of Medieval remains in Corinth's southern territory is also evident in other ways.[121] Mean center analysis shows that the notional center of these units lies midway between the Isthmus and the southeast survey zones, 9.5 km southeast of Yiriza and Gonia, 11 km northwest of Lakka Skoutara, and 5 km southeast of the center of all EKAS Discovery Units.[122] Of course, individual chronotype periods show variation that warrants further analysis,[123] but the overall pattern, at least, is consistent in that it shows Medieval habitation oriented toward the southeast as much as toward the Isthmus.[124] Consequently, occupation of this period as a whole is associated with higher elevations. The average weighted elevation for Medieval material generally is 180 masl, well above that for all other analytical periods.[125] Again, an analysis of the Medieval chronotype periods points to underlying variation that warrants a closer look,[126] but, collectively the correlation with higher elevations is distinct. Certainly the greater occupation of the mountainous southeastern Corinthia raises the average weighted elevation of Medieval zones generally, but even settlement on the Isthmus appears oriented toward higher elevations, such as the moderate to high density zones (Z3, Z4, Z5, Z38) on the lower slopes of Mount Oneion, or the high-density (second quintile) zones on the ridge above Kenchreai (Z42 and Z43).[127]

The southward orientation of Medieval remains when compared to earlier periods reflects the greater frequency of material in most southern zones generally, including Vayia (Z46, Z47), Vigla (Z45),[128] and especially the valley of Lakka Skoutara, a semi-village settlement that, in the early modern period at least, was a satellite community of seasonal residents from the nearby sizable village of Sophiko.[129] Intensive survey in the valley generated an extensive carpet of objects: some 76% of the entire *Medieval* chronotype period (n=155/203 artifacts) and over 50% of all objects of Medieval date (n=169/322) were found in this valley.[130] Indeed, 35% of units in the valley generated Medieval remains (contrast with 8% of the units of the Isthmus having objects of Medieval date). While much of the material at Lakka Skoutara is unglazed and cannot be associated with a narrow period,[131] its distribution over the entire western half of the valley suggests that the modern pattern of semi-village (containing scattered houses, threshing floors, agricultural installations, and churches) dates to well before the nineteenth century. The precise chronology of the valley and its spatial distributions need to be further refined through more textured analyses,[132] but the available type fossils point to Medieval settlement beginning in the valley in *Late Medieval* or *Ottoman/Venetian* times.[133]

On the Isthmus, the Medieval period shows very different patterns than the Roman analytical period.[134] The most striking is the absence of a continuous carpet of objects. Instead, we find a series of discrete clusters—a pattern that Timothy Gregory described as nucleated.[135] Medieval remains tend to concentrate in fewer places than in the Roman period where small discrete artifact clusters are more widely distributed.[136] A second difference is the location of highest-density zones. While there are some important overlaps between Medieval higher-density zones and Roman higher-density zones—on the lower slopes of Mount Oneion (Z3 and Z38), below Rachi Boska (Z12), near the Byzantine Fortress south of Isthmia (Z37), and on the ridge above Kenchreai (Z42 and Z43)—there are also substantial differences.[137] The densest Roman zones on the Isthmus—on the Rachi Boska ridge, between Perdikaria and Kromna, along the Corinth-Isthmia Road, and surrounding Isthmia—produce relatively low Medieval densities.[138] The weakness of Medieval remains around Isthmia is surprising given the historical importance of the Hexamilion in Byzantine to *Ottoman/Venetian* times and may reflect the period's low visibility (Section 11.5).[139]

Other kinds of analysis highlight the tendency toward nucleation in the Medieval period.[140] Nearest neighbor analysis of the 25 densest Medieval units, for example, suggests a pattern of clustering with an average distance between them of 237 meters.[141] In fact, the densest units are almost always clustered together: 15 of the densest units (60%) are found in the southeastern Corinthia in the valley of Lakka Skoutara, 4 units below Rachi Boska on the Isthmus and 3 at Ayia Paraskevi. The 4 isolated top 25 units include 1 at Ano Vayia, 2 near Isthmia, and 1 at Gonia. The top 25 units consistently show a consistent correlation with the densest Medieval zones, the vast majority (20/25) being in top quintile (rank 1) zones. All of this is indication of a strong pattern of clustering for the Medieval period in which fewer locations create the signature of the period.

The relationship between the densest Medieval units and the defined hotspots of the EKAS region is much less clear than for other analytical periods. Only 9 of the 25 units overlap with (or were adjacent to) the defined LOCAs of the region, suggesting that the presence or density of Medieval remains did not consistently contribute much to site definition during survey; average distance between a top 25 Medieval unit and a LOCA was about 100 meters.[142] This is confirmed also by near analysis between Medieval top density units and the densest overall units based on total count (*total density units*) and stratified densities (*stratified density units*). Only in 7 or 8 instances (mostly on the Isthmus) did the densest Medieval units fall within even 50 meters of a top decile *total density unit* or *stratified density unit*; the average distance (mean or median) of a Top 25 Medieval unit to a top decile unit was 136 meters. Medieval traces contributed to the makeup of the densest overall units in only a couple of cases and were rarely an important factor for defining sites during survey (LOCAs).[143]

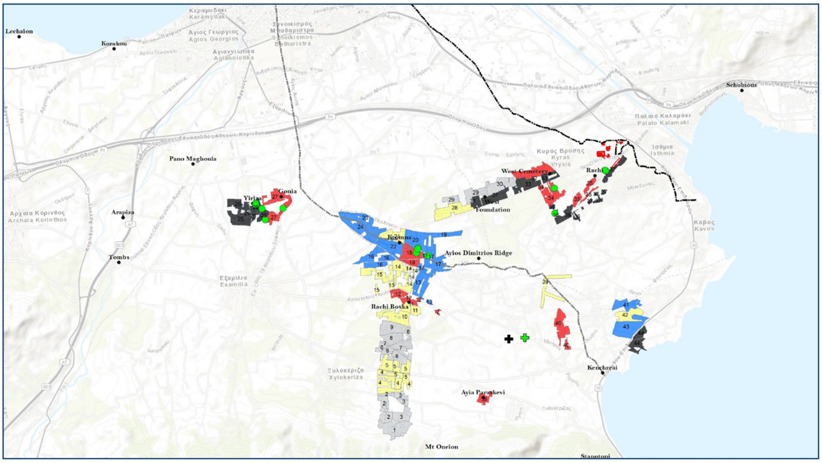


Figure 12.13. Modern distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest Modern units, green cross the mean center of PG–HE unit distributions, and the black cross the mean center of all EKAS survey units.

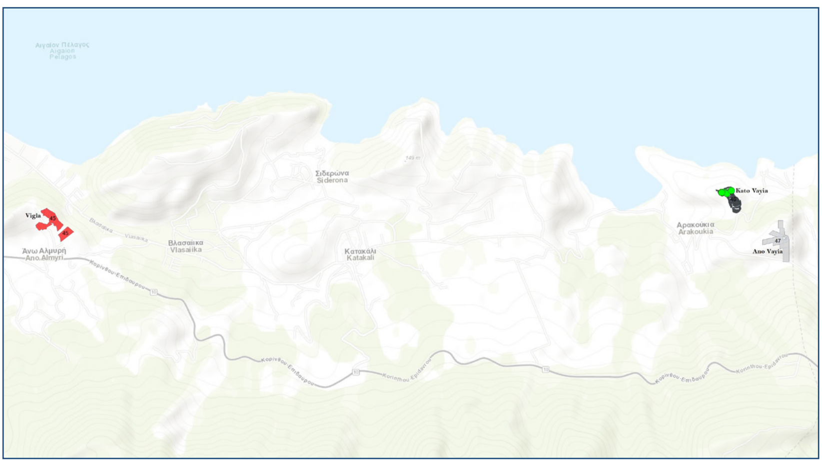


Figure 12.14. Modern distributions at Vigla and Vayia (Z45, Z46, and Z47) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest Modern units.

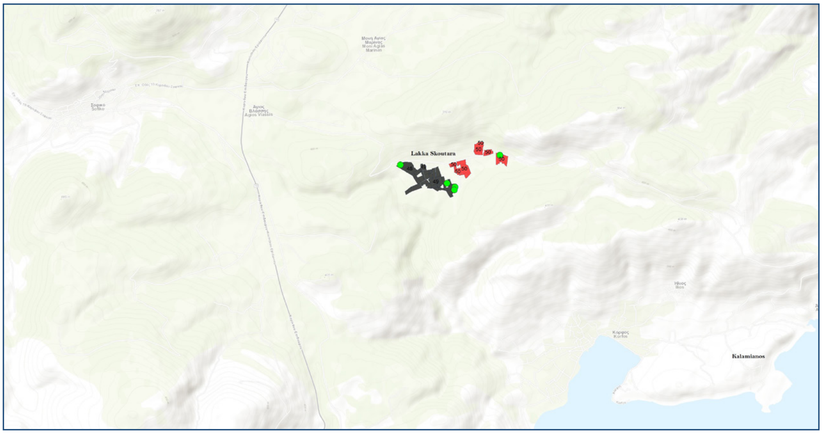


Figure 12.15. Modern distributions at Lakka Skoutara (Z48, Z49, and Z50) showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. Green dots represent 25 densest Modern units.

12.6. Modern Distributions

Modern traces were discovered everywhere during survey.[144] Field teams recorded pottery and tile, small finds, trash, and features of all kinds. While this modern abundance collectively highlights intensive land use, agriculture, and habitation, it masks a more complex history. About 80% of the Modern assemblage of objects actually dates to the second half of the twentieth century (cf. Section 11.6), a period associated with rapid modernization, abandonment of remote Corinthian rural districts (e.g., Lakka Skoutara), and the simultaneous development of settlement and agriculture of the Isthmus.[145] The Modern period in EKAS, then, can be read as a tale of two distinct periods of development: the period up to the 1950s and the more recent transformations of the later twentieth century. While my overview will describe these patterns as an aggregate of three chronotype periods—*Early Modern*, *Modern Present*, and *Modern*—a finer-tuned analysis is necessary to disentangle and contextualize these periods.[146]

Modern remains were documented in every zone of the survey region (Figure 12.13, 12.14, 12.15).[147] About 508 survey units, or 40% of the standard units (n=508/1287), generated artifacts of the broad period, and these units covered an area of about 1.8 km^2 (compare with 2.8 km^2 for the Roman period).[148] This, however, must be a significant underestimate of artifacts in the landscape since fieldwalkers in were asked not to flag tile in 1999 and not to flag modern non-ceramic objects in 2000 and 2001. Modern pottery, tile, other objects, and features were recorded in 100% of the survey zones, 35% of the standard survey units on the Isthmus (450/1287), and 42% of the standard units of the southern territory (69/165).[149] The distributions across zones were remarkably consistent: in contrast with the Prehistoric period (Section 12.2), no single zone dominated Modern densities.[150] Zone counts range from 1 to 112 (median 22) and putative zonal densities from 1 to 252 (median 25). The fact that the surveyed modern landscape in EKAS consists of a continuous carpet of modulating densities is further indication that most of the Modern objects recorded in survey belong to the second half of the twentieth century, when smaller farms, rural installations, and buildings supplemented the village settlements of early modern date.[151]

Modern traces of objects and features were observed in the vast majority of survey units even when they were not always recorded in a systematic way.[152] Some indication of their true presence comes from the modern sweep data and features data. In 1999, field teams recorded modern remains systematically on a dedicated modern sweep form that made an account of the presence of various kinds of construction material and common non-ceramic object classes such as cans, window glass, and plastic water bottles (cf. Section 5.2.3). The form was abandoned by the start of the second season because the project archaeologists felt it was too time-intensive to record scatters of modern trash, provisional discard, or stored construction items visible in every survey unit! While the processing team recorded Modern pottery, tile, or other artifacts in only 28% of standard units in 1999, the modern sweep data indicates that 93% of standard survey units had associated modern remains. A second indicator of the extent of Modern remains comes in the form of the features data, which suggests that modern features were documented in more than 50% of units in all years of the survey (652 of 1292 standard units and features units).[153]

The Modern signatures were as equally impressive in the zones of the southern territory as in the zones on the Isthmus.[154] In the southern territory, all of the zones except for Ano Vayia ranked in the top 2 quintiles for overall density of modern remains. Lakka Skoutara Central (Z49) and West (Z48) and Kato Vayia in particular rank as the 3 densest zones in the territory.[155] The habitation of the semi-village at Lakka Skoutara from Medieval times to the 1960s left a robust modern signature. On the Isthmus, the densest Modern zones (quintile rank 1 or 2) are found on the outskirts of modern villages, especially two villages: Kyras Vrysi, which was developed from the time of the Corinth Canal project (AD 1882–1893), and Kato Examilia near Yiriza and Gonia, which is a settlement with a history stretching back to Medieval times at least. Other higher-density zones (Ranks 1–2) on the Isthmus can be explained as farming settlements along major modern roads (e.g., near Kromna and West Foundation), or as settlements with long histories (e.g., Ayia Paraskevi and below Rachi Boska).[156]

While all of the survey area had signatures of *Early Modern* and *Modern Present*, the zones of the southern territory clearly had more *Early Modern* remains and the Isthmus zones more *Modern Present* objects.[157] Mean centers for the *Modern* and *Modern Present* periods, for example, fall on the Isthmus about 1.5 km east of Rachi Boska, 1 kilometer east of the mean centers for the Roman periods, and 0.5 km due north of the mean center for all EKAS Discovery Units.[158] The pattern probably reflects the influence of the modern villages of Examilia and Kyras Vrysi;[159] the low average zonal elevation for the *Modern Present* period (110 masl) is also consistent with the lower occupations of the Isthmus.[160] The mean center for the *Early Modern* period, on the other hand, falls 5 km further to the east-southeast in almost the same location as the mean centers for the Medieval analytical period and the *Medieval–Modern* periods.[161] The average zonal elevation is 182 masl, a value consistent with the Medieval period inclusively. Since the 1950s or 1960s the valley of Lakka Skoutara has been increasingly abandoned while the Isthmus has become more densely settled.[162]

The densest Modern units are distributed nearly equally between the Isthmus and southern territory, and concentrate in little clusters around Kyras Vrysi, Kato Examilia (i.e., Yiriza-Gonia), Kromna-Kesimia, Kato Vayia, and Lakka Skoutara. Breaking down the data by narrower periods points to the same important differences noted above. Most of the top 25 *Early Modern* units fall in the south, especially at Vigla (n=2) and Lakka Skoutara (n=15); the other 7 units are distributed across the Isthmus in 7 different zones. In contrast, 23 of the top 25 densest *Modern Present* units fall on the Isthmus around Kato Examilia, Kyras Vrysi, and a zone between Boulberi and Kesimia; the other 2 are in Lakka Skoutara.[163] The densest units of *Early Modern* and *Modern Present* are usually associated with the densest zones of *Early Modern* and *Modern Present* periods, respectively. Average nearest neighbor analysis of the top 25 Modern, *Early Modern*, and *Modern Present* units indicates a pattern of clustering in each case, with average distances varying from 139 meters (Modern) to 412 meters (*Early Modern*).[164]

Archaeologists of the Eastern Korinthia Archaeological Survey defined over a dozen LOCAs of the Modern period in the course of survey (villages, cemeteries, and several houses) on the basis of architectural remains,[165] but concentrations of Modern artifacts (top 25 units) by themselves were not generally important to site definition during survey.[166] The top 25 densest *Early Modern* units rarely overlapped with the densest overall units.[167] A closer correlation exists between the top 25 units of the (inclusive) Modern analytical period and the top decile *total density units*: about half of the 25 units overlap with or were adjacent to these units. Near analysis suggests a mean and median distance of less than 5 meters between the densest Modern units and the top decile total density units, suggesting that some Modern hotspots contributed to the overall carpet of objects.

01100010 01110010 01100101 01100001 01101011

My goal in this chapter was to characterize the general patterns of artifact distributions in the survey region according to five broad periods. Systematic description using standard terms of data analysis and available GIS tools created a pathway for comparing periods that defined areas of similarity and difference and shed light on key distinctives of each period. The settlement of the Prehistoric and Medieval periods, for example, appears highly nucleated, with denser concentrations of material traces at fewer places—e.g., Gonia-Yiriza and Kato Vayia for the former, Ayia Paraskevi and Lakka Skoutara for the latter—and relatively low densities everywhere else.[168] The Protogeometric–Hellenistic period produced a more continuous carpet of objects on the Isthmus, yet one with dominant nuclei at Kromna, Ano Vayia, and Isthmia. Roman distributions comprised a continuous carpet everywhere on the Isthmus and with widely distributed spikes in density in the zones and units around Isthmia, Kenchreai, and Ayia Paraskevi.[169] The Modern period also produced evidence of a continuous carpet of objects in respect to more recent decades of land use.[170]

Our discussion has also highlighted the value of distributional approaches that simultaneously aggregate and slice. Aggregation provides more data to quantify and study but at a cost of nuance and resolution, while layering creates the opportunity to fine-tune but based on a smaller sample of material. Average nearest neighbor analysis of the densest units of each period, for example, has shown that the prehistoric carpet is the most nucleated in that the densest units lie the closest to one another. Near analysis highlighted the close spatial relationship between the densest Protogeometric–Hellenistic and

Roman units and defined LOCAs, indicating that these analytical periods contributed most to the impression of exceptional artifact density and site definition during survey;[171] the artifact layers of the densest Medieval and Modern units, in contrast, contributed less commonly to the definition of LOCAs.[172] The same tool also showed that Prehistoric, Protogeometric–Hellenistic, and Roman top density sites were, on average, very close to the densest units in the survey region; even the *Modern Present* period may to some extent have contributed to the density values of the region's hotspots.[173] The Medieval period, on the other hand, made less consistent contribution to overall densities.[174]

In the process of describing the forest of artifact patterning in the EKAS region, I have pointed to the need for further finer-grained analysis of the sort that has been done on limited basis for certain periods (Chapter 4 and Appendix I). That future work must consider the histories of individual areas, zones, sites, and units, as well as the historical developments in the shorter-term. While a focus on broad analytical periods such as the Prehistoric era or Roman period offers a method of assessing the degree of stability of occupation and land use in the long term through a reliable sample of data, a consideration of narrower period groupings can tease out the historically contingent developments in the Corinthian countryside while taking account of the problems of source criticism (Ch. 11).[175] Other broad periods clearly beg for further analysis: the *Ottoman/Venetian* period distribution, for instance, is oriented much more closely to the Isthmus than the other Medieval periods, while the *Early Modern* and *Modern Present* periods have different signatures that are partly sidelined by aggregate analysis.[176] Future analysis should consider the effects of differential visibility and other kinds of materials like lithic remains or features that may contribute to pictures of different periods of Corinthian history.

To highlight what a finer-grained breakdown of an analytical period could look like, I will use as a final case study an analysis of the Roman analytical period.[177]

Endnotes

1 Bintliff, Howard, and Snodgrass 2007, 26–37; Attema et al. 2020, 21.

2 Three useful tools for reclaiming chronological data from coarsely dated objects are aoristic analysis, nearest neighbor analysis, and near analysis. For near analysis, see the introduction to Chapter 10 for a short description; on nearest neighbor analysis, see Section 12.1. Aoristic analysis is a probabilistic tool for assigning values to periods: Fentress and Perkins 1988; Fentress et al. 2004; and Johnson 2004; Caraher and Pettegrew 2014, 188–189. See Caraher, Nakassis, and Pettegrew 2006, 26–34 and Gregory 2007 for attempts to use aoristic analysis and nearest neighbor analysis to parse the Ottoman/Venetian (https://n2t.net/ark:/28722/k2tb1j606) period in the eastern Corinthia. *Ancient* (https://n2t.net/ark:/28722/k2sf36p38) or *Post-Prehistoric* (https://n2t.net/ark:/28722/k2000kb1m).

3 *Late Helladic IIIB* (https://n2t.net/ark:/28722/k2j10gf9w) or *Geometric* (https://n2t.net/ark:/28722/k2qc0fg8f).

4 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and Modern (https://n2t.net/ark:/28722/k2g16dz03).

5 Roman (https://n2t.net/ark:/28722/k2b85q477); *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

6 For example, I have included *Bronze Age* and *Prehistoric* chronotypes in my overview of the Prehistoric period but excluded *Late Bronze Age–Classical* (https://n2t.net/ark:/28722/k2z60zc3b) because it falls between Prehistoric and Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d) Analytical Periods.

7 Standard Units (https://n2t.net/ark:/28722/k2kh10w9f). Period densities exclude non-standard units (e.g., Experimental Units) and objects identified via any technique besides chronotype sampling (e.g., Grab Samples). The data queried from the Finds Data Table (https://doi.org/10.6078/M7DR2SM1) to generate period densities includes material with a Class (https://n2t.net/ark:/28722/k21g13s34) value of "Standard" and Collection-Strategy (https://n2t.net/ark:/28722/k2b288q5k) value of "Chronotype."

8 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and Modern (https://n2t.net/ark:/28722/k2g16dz03).

9 Roman (https://n2t.net/ark:/28722/k2b85q477).

10 https://n2t.net/ark:/28722/k26m3pq6d

11 Attema et al. 2020, 5.

12 Roman (https://n2t.net/ark:/28722/k2b85q477), Isthmus (https://n2t.net/ark:/28722/k2h99jq4r).

13 For an example of this synthetic interpretation for the Roman period (https://n2t.net/ark:/28722/k2b85q477), see Pettegrew 2016.
14 *Neolithic* (https://n2t.net/ark:/28722/k2w38662w), *Late Bronze Age* (https://n2t.net/ark:/28722/k2t444d1g).
15 https://n2t.net/ark:/28722/k2qj7vk08
16 https://n2t.net/ark:/28722/k2h425770
17 Standard Units (https://n2t.net/ark:/28722/k2h425770), Medieval (https://n2t.net/ark:/28722/k26m3pq5x).
18 Gonia (https://www.geonames.org/12514037/gonia.html), Z25 (https://n2t.net/ark:/28722/k2mw2w19g).
19 https://n2t.net/ark:/28722/k2qj7vk08
20 https://n2t.net/ark:/28722/k2qj7vk08
21 Pullen and Tartaron 2007. Cf. Section 4.2.1.
22 Isthmus (https://pleiades.stoa.org/places/570317).
23 https://n2t.net/ark:/28722/k2cc1ff2c
24 Units south of Mount Oneion (https://n2t.net/ark:/28722/k27m0qm6n). The greater proportion of prehistoric pottery in the southeast compared to other eras reflects the survey of Vayia (https://www.geonames.org/9409078/vayia.html) and Vigla (https://www.geonames.org/12514008/vigla.html), which produced substantial prehistoric signatures.
25 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).
26 Zones of Gonia, Yiriza, and Yiriza South (https://n2t.net/ark:/28722/k26m3pq6d), Z25 (https://n2t.net/ark:/28722/k2mw2w19g), Z26 (https://n2t.net/ark:/28722/k23v00t1d), Z27 (https://n2t.net/ark:/28722/k20580d17).
27 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).
28 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), *Late Bronze Age* (https://n2t.net/ark:/28722/k2t444d1g), *Early Helladic II* (https://n2t.net/ark:/28722/k2891n248), *Middle Helladic–Late Helladic I* (https://n2t.net/ark:/28722/k2ht32n8w), and Z35 (https://n2t.net/ark:/28722/k2vd78r67).
29 Surrounding zones (https://n2t.net/ark:/28722/k22z1p950), Z32 (https://n2t.net/ark:/28722/k2qn6jz42), Z33 (https://n2t.net/ark:/28722/k2kw5v51t), and Z34 (https://n2t.net/ark:/28722/k2g454b68), and Z37 (https://n2t.net/ark:/28722/k2bc4dj05).
30 Rachi Boska Ridge (https://n2t.net/ark:/28722/k2n58zx2x), Z10 (https://n2t.net/ark:/28722/k2tf07v8h), and Z12 (https://n2t.net/ark:/28722/k2z60zn9t).
31 Zones of the Isthmus (https://n2t.net/ark:/28722/k2cc1ff2c).
32 Zones of Southern Territory (https://n2t.net/ark:/28722/k2f483f5j).
33 Kato Vayia (https://n2t.net/ark:/28722/k2g16b016), Z46 (https://n2t.net/ark:/28722/k2pn9j25q), and Lychnari Bay (https://www.geonames.org/258288/ormiskos-linari.html).
34 Kato Vayia (https://www.geonames.org/12514005/kato-vayia.html), *Early Helladic II* (https://n2t.net/ark:/28722/k2891n248).

35 *Early Neolithic* (https://n2t.net/ark:/28722/k2gt61s26), *Final Neolithic–Early Helladic I* (https://n2t.net/ark:/28722/k2zw1w36n), and *Late Bronze Age* (https://n2t.net/ark:/28722/k2t444d1g).

36 Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html), Z49 (https://n2t.net/ark:/28722/k2f483f5j), Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), *Final Neolithic* (https://n2t.net/ark:/28722/k27d39j7b), *Early Bronze Age* (https://n2t.net/ark:/28722/k22r4874q), and *Middle Helladic–Late Helladic* (https://n2t.net/ark:/28722/k2sb4h87w).

37 Vigla (https://www.geonames.org/12514008/vigla.html), Almyri (https://www.geonames.org/260640/kato-almyri.html), and Z45 (https://n2t.net/ark:/28722/k2jw8t81k).

38 https://n2t.net/ark:/28722/k2qj7vk08

39 Gonia (https://www.geonames.org/12514037/gonia.html), Z25 (https://n2t.net/ark:/28722/k2mw2w19g), Yiriza (https://www.geonames.org/12514036/yiriza.html), Z26 (https://n2t.net/ark:/28722/k23v00t1d), and Z27 (https://n2t.net/ark:/28722/k20580d17).

40 https://www.geonames.org/12514005/kato-vayia.html

41 Z18 (https://n2t.net/ark:/28722/k29c7cn1d).

42 Unit 1005 (https://n2t.net/ark:/28722/k25q5c69w), Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).

43 https://n2t.net/ark:/28722/k2qj7vk08

44 Protogeometric-Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).

45 Protogeometric-Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).

46 *Archaic* (https://n2t.net/ark:/28722/k2058036m), *Classical* (https://n2t.net/ark:/28722/k2h13fj66), and *Hellenistic* (https://n2t.net/ark:/28722/k2b570g0c).

47 Protogeometric-Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).

48 https://n2t.net/ark:/28722/k2b85q477

49 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).

50 Zones of the Isthmus (https://n2t.net/ark:/28722/k21z4nd7q).

51 Zones of the southeast region (https://n2t.net/ark:/28722/k2x63xs34).

52 Protogeometric-Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).

53 Ano Vayia (https://www.geonames.org/12514006/ano-vayia.html), Z47 (https://n2t.net/ark:/28722/k2sf36z9r), Vigla (https://www.geonames.org/12514008/vigla.html), Kromna (https://www.geonames.org/12514059/kromna.html), and Perdikaria (https://www.geonames.org/12514081/perdikaria.html).

54 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).

55 On Kromna, see Wiseman 1978, 66–68; Tartaron et al. 2006, 494–513; Caraher, Nakassis, and Pettegrew 2006, 14–21; Pettegrew 2006, 248–262; and Tasinos 2013. Examilia Village (https://www.geonames.org/262558/examilia.html).

56 Z14 (https://n2t.net/ark:/28722/k2d512j2d), Z15 (https://n2t.net/ark:/28722/k28g9244w), Z16 (https://n2t.net/ark:/28722/k24q8bb0r), Z17 (https://n2t.net/ark:/28722/k20z7mh7g), Z18 (https://n2t.net/ark:/28722/k2w66ww2d), Z20 (https://n2t.net/ark:/28722/k2rf6627z), Z21 (https://n2t.net/ark:/28722/k2mp5g81v), and Z22 (https://n2t.net/ark:/28722/k2gx4rf73).

57 *Geometric* (https://n2t.net/ark:/28722/k2qc0fg8f), *Archaic* (https://n2t.net/ark:/28722/k2058036m).
58 Kenchreai (https://pleiades.stoa.org/places/570347), Schoinous (https://pleiades.stoa.org/places/570656), and Lechaion (https://pleiades.stoa.org/places/364712046).
59 Pettegrew 2016, 82–86. Trans-isthmus fortification wall (https://www.geonames.org/12514074/trans-isthmus-wall.html).
60 https://pleiades.stoa.org/places/107524051
61 Pettegrew 2016, 48–59.
62 Zones west of Kyras Vrysi (https://n2t.net/ark:/28722/k2c82r18z), Z32 (https://n2t.net/ark:/28722/k2c82r18z), Z33 (https://n2t.net/ark:/28722/k23r19f1j), Z34 (https://n2t.net/ark:/28722/k2000km73), West Cemetery (https://www.geonames.org/12514057/west-cemetery.html), and Sanctuary of Poseidon (https://pleiades.stoa.org/places/107524051).
63 Zones at Kromna (https://n2t.net/ark:/28722/k2hx1sb7b).
64 Isthmia (https://pleiades.stoa.org/places/570316), Kromna (https://www.geonames.org/12514059/kromna.html).
65 Protogeometric-Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
66 Caraher, Nakassis, and Pettegrew 2006. *Archaic* (https://n2t.net/ark:/28722/k2058036m), *Hellenistic* (https://n2t.net/ark:/28722/k2b570g0c).
67 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Z47 (https://n2t.net/ark:/28722/k2kp8fc1m), and Z45 (https://n2t.net/ark:/28722/k2v69w013).
68 Caraher, Pettegrew, and James 2010. *Classical-Hellenistic* (https://n2t.net/ark:/28722/k2v98k29s).
69 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d)
70 Z47 (https://n2t.net/ark:/28722/k2kp8fc1m)
71 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Z46 (https://n2t.net/ark:/28722/k2qf9555r).
72 Z45 (https://n2t.net/ark:/28722/k2v69w013).
73 Z48-Z50 (https://n2t.net/ark:/28722/k2v69w013), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
74 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
75 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
76 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Roman (https://n2t.net/ark:/28722/k2b85q477).
77 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
78 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
79 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).
80 Roman (https://n2t.net/ark:/28722/k2b85q477).
81 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), and *Roman* (https://n2t.net/ark:/28722/k23r1944z).

82 Roman (https://n2t.net/ark:/28722/k2b85q477); Survey units (https://n2t.net/ark:/28722/k26h50b5f)

83 Roman (https://n2t.net/ark:/28722/k2b85q477).

84 Roman (https://n2t.net/ark:/28722/k2b85q477).

85 Roman (https://n2t.net/ark:/28722/k2b85q477).

86 Roman (https://n2t.net/ark:/28722/k2b85q477).

87 Zones of the Isthmus (https://n2t.net/ark:/28722/k22r48j0t).

88 Zones of the southern region (https://n2t.net/ark:/28722/k2z03jw4n), Z46 (https://n2t.net/ark:/28722/k2697k80v), Z47 (https://n2t.net/ark:/28722/k2ft90w1g), Z45 (https://n2t.net/ark:/28722/k2zs35q1b), Z48 (https://n2t.net/ark:/28722/k2pg2484k), Z49 (https://n2t.net/ark:/28722/k2jt03v47), and Z50 (https://n2t.net/ark:/28722/k2f19d21r).

89 Roman (https://n2t.net/ark:/28722/k2b85q477), Z45 (https://n2t.net/ark:/28722/k2697k80v), Z46 (https://n2t.net/ark:/28722/k2ft90w1g), Z47 (https://n2t.net/ark:/28722/k2zs35q1b), and Z48 (https://n2t.net/ark:/28722/k2pg2484k)

90 Roman (https://n2t.net/ark:/28722/k2b85q477), Rachi Boska (https://n2t.net/ark:/28722/k2n58zx2x).

91 Roman (https://n2t.net/ark:/28722/k2b85q477).

92 Roman (https://n2t.net/ark:/28722/k2b85q477).

93 Roman (https://n2t.net/ark:/28722/k2b85q477).

94 Roman (https://n2t.net/ark:/28722/k2b85q477).

95 Roman (https://n2t.net/ark:/28722/k2b85q477), Z48 (https://n2t.net/ark:/28722/k2pg2484k), Z49 (https://n2t.net/ark:/28722/k2jt03v47), and Z50 (https://n2t.net/ark:/28722/k2f19d21r).

96 Z30 (https://n2t.net/ark:/28722/k2988p78g), Z31 (https://n2t.net/ark:/28722/k25h7zf4b), Z32 (https://n2t.net/ark:/28722/k21r77m9g), Z33 (https://n2t.net/ark:/28722/k2x06j03b), Z34 (https://n2t.net/ark:/28722/k2s75t60p), Z35 (https://n2t.net/ark:/28722/k2nk3sr8r), Z36 (https://n2t.net/ark:/28722/k2ht32z5g), and Z37 (https://n2t.net/ark:/28722/k2d22c531).

97 Pettegrew 2015, 2016; Kenchreai (https://pleiades.stoa.org/places/570347), Z40 (https://n2t.net/ark:/28722/k2891nb98), Z42 (https://n2t.net/ark:/28722/k24j0xj4n), Z43 (https://n2t.net/ark:/28722/k20s06q9s), and Panorama (https://www.geonames.org/9408787/panorama-xylokerizis.html).

98 Z43 (https://n2t.net/ark:/28722/k20s06q9s).

99 Z40 (https://n2t.net/ark:/28722/k2891nb98).

100 Z38 (https://n2t.net/ark:/28722/k2w09h34k).

101 Roman (https://n2t.net/ark:/28722/k2b85q477).

102 Tartaron et al. 2006; Gregory 2010, 2013; Pettegrew 2015, 2016; Z12 (https://n2t.net/ark:/28722/k2rb7gp3r), Rachi Boska (https://n2t.net/ark:/28722/k2n58zx2x), Roman (https://n2t.net/ark:/28722/k2b85q477), and Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

103 Rachi Boska (https://n2t.net/ark:/28722/k2n58zx2x) Z12 (https://n2t.net/ark:/28722/k2rb7gp3r), Ayia Paraskevi (https://www.geonames.org/9408784/ayia-paraskevi.html), Z38 (https://n2t.net/ark:/28722/k2w09h34k), Z34 (https://n2t.net/ark:/28722/k2s75t60p), and Z37 (https://n2t.net/ark:/28722/k2d22c531).

104 Z25 (https://n2t.net/ark:/28722/k2n58zx2x), Boulberi (https://www.geonames.org/12514058/boulberi.html), Z23 (https://n2t.net/ark:/28722/k2zw1wd18), Kesimia (https://www.geonames.org/12514083/kesimia.html), Z18 (https://n2t.net/ark:/28722/k2mk6rw03), Z19 (https://n2t.net/ark:/28722/k2gt6227m), Z20 (https://n2t.net/ark:/28722/k2c25b829), Z21 (https://n2t.net/ark:/28722/k2794mf6k), Z22 (https://n2t.net/ark:/28722/k23j3wn2f), and Z3 (https://n2t.net/ark:/28722/k2qc0fs51).

105 Z4 (https://n2t.net/ark:/28722/k2kk9r027).

106 Roman (https://n2t.net/ark:/28722/k2b85q477).

107 The mean distance removes the outlier in the southeastern Corinthia through the IQR method.

108 Roman (https://n2t.net/ark:/28722/k2b85q477).

109 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

110 Roman (https://n2t.net/ark:/28722/k2b85q477); Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

111 *Medieval* (https://n2t.net/ark:/28722/k2qj7v85n), *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v), and *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606).

112 Roman (https://n2t.net/ark:/28722/k2b85q477); Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

113 https://n2t.net/ark:/28722/k2t444p8f

114 Z50 (https://n2t.net/ark:/28722/k25d9820x), Z49 (https://n2t.net/ark:/28722/k29318g1w), Z38 (https://n2t.net/ark:/28722/k2dv20866), Rachi Boska (https://n2t.net/ark:/28722/k2n58zx2x) Z12 (https://n2t.net/ark:/28722/k2rb7gp3r).

115 https://n2t.net/ark:/28722/k2t444p8f

116 Roman (https://n2t.net/ark:/28722/k2b85q477); Medieval habitation across the survey region (https://n2t.net/ark:/28722/k2t444p8f).

117 Zones of the southeast territory (https://n2t.net/ark:/28722/k2ft9157c), zones of the Isthmus (https://n2t.net/ark:/28722/k2b289c22).

118 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

119 Z12 (https://n2t.net/ark:/28722/k2jm2q32j), Z38 (https://n2t.net/ark:/28722/k2dv20866).

120 Z45 (https://n2t.net/ark:/28722/k2ww7tm3r), Z47 (https://n2t.net/ark:/28722/k21n8j765), Z49 (https://n2t.net/ark:/28722/k29318g1w), and Z50 (https://n2t.net/ark:/28722/k25d9820x).

121 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

122 https://n2t.net/ark:/28722/k2df72g4h

123 The mean center of the Ottoman/Venetian period in particular falls on the Isthmus, but the low visibility of this period recommends careful analysis after further study. Cf. Pettegrew and Caraher, 2025.

124 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

125 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

126 *Early Medieval* (https://n2t.net/ark:/28722/k2g16dn5g), for example, has a much lower average weighted zonal elevation of 97 masl—an elevation on par with Roman periods.

127 Z3 (https://n2t.net/ark:/28722/k2s473t0s), Z4 (https://n2t.net/ark:/28722/k2nc6d04g), Z5 (https://n2t.net/ark:/28722/k2hm5p58r), Z38 (https://n2t.net/ark:/28722/k2dv20866), Z42 (https://n2t.net/ark:/28722/k2cv4zc4m), and Z43 (https://n2t.net/ark:/28722/k2862xz52).

128 Medieval objects were extensive in the southern zones: 30% of the units of Z45 (https://n2t.net/ark:/28722/k2ww7tm3r), Z47 (https://n2t.net/ark:/28722/k21n8j765), Z48 (https://n2t.net/ark:/28722/k2pg2484k), Z49 (https://n2t.net/ark:/28722/k29318g1w), and Z50 (https://n2t.net/ark:/28722/k25d9820x) generated Medieval remains, and 35% of the units at Lakka Skoutara (https://www.geonames.org/12514009/lakka-skoutara.html)specifically. Contrast with the Isthmus, where only 8% of standard units generated Medieval remains.

129 Sophiko (https://www.geonames.org/253494/sofikon.html).

130 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), *Medieval* (https://n2t.net/ark:/28722/k2qj7v85n).

131 Common chronotypes include generic Medieval amphoras (identified mostly from handles and toes), kitchen wares, medium coarse wares, semi-fine ware, and tiles; occasional fragments of pithoi, coarse ware, and fine ware were also noted.

132 E.g., Pettegrew and Caraher, 2025.

133 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), *Late Medieval* (https://n2t.net/ark:/28722/k26h5018v), *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606).

134 Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

135 Gregory 2013.

136 Roman (https://n2t.net/ark:/28722/k2b85q477), Medieval (https://n2t.net/ark:/28722/k26m3pq5x)

137 Z3 (https://n2t.net/ark:/28722/k2s473t0s), Z38 (https://n2t.net/ark:/28722/k2dv20866), Rachi Boska (https://n2t.net/ark:/28722/k2n58zx2x), Z12 (https://n2t.net/ark:/28722/k2jm2q32j), Byzantine Fortress (https://pleiades.stoa.org/places/206736898), Z37 (https://n2t.net/ark:/28722/k2862xz6j), Z42 (https://n2t.net/ark:/28722/k2cv4zc4m), and Z43 (https://n2t.net/ark:/28722/k2862xz52).

138 Perdikaria (https://www.geonames.org/12514081/perdikaria.html), Rachi Boska (https://n2t.net/ark:/28722/k2n58zx2x).

139 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), Hexamilion (https://pleiades.stoa.org/places/242076354), and *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606).

140 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

141 The average distance is inflated in part because of relatively isolated top density units near Gonia and Isthmia without near neighbors.
142 Median: 99 meters, mean: 121 meters.
143 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).
144 Modern (https://n2t.net/ark:/28722/k2g16dz03).
145 Modern (https://n2t.net/ark:/28722/k2g16dz03).
146 *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), and *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).
147 Modern (https://n2t.net/ark:/28722/k2f76sj4z), Survey Zones (https://n2t.net/ark:/28722/k2pc3dw68).
148 Roman (https://n2t.net/ark:/28722/k2b85q477).
149 Survey Zones (https://n2t.net/ark:/28722/k2pc3dw68).
150 Modern (https://n2t.net/ark:/28722/k2f76sj4z), Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08).
151 Modern (https://n2t.net/ark:/28722/k2g16dz03).
152 Modern (https://n2t.net/ark:/28722/k2g16dz03).
153 Modern (https://n2t.net/ark:/28722/k2g16dz03).
154 Modern (https://n2t.net/ark:/28722/k2g16dz03), Zones of the southern territory (https://n2t.net/ark:/28722/k2697kj7t), Zones on the Isthmus (https://n2t.net/ark:/28722/k22n5k46d).
155 Z48 (https://n2t.net/ark:/28722/k20p1hb8f), Z49 (https://n2t.net/ark:/28722/k24f27507).
156 Kyras Vrysi (https://www.geonames.org/259734/kyras-vrysi.html), Corinth Canal (https://pleiades.stoa.org/places/131418574), Kato Examilia (https://www.geonames.org/9408783/kato-examilia.html), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and West Foundation (https://www.geonames.org/12514056/west-foundation.html).
157 *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75), zones of the southern territory (https://n2t.net/ark:/28722/k2697kj7t), and the Isthmus zones (https://n2t.net/ark:/28722/k22n5k46d).
158 Roman (https://n2t.net/ark:/28722/k2b85q477), EKAS Discovery Units (https://n2t.net/ark:/28722/k2df72g4h).
159 This northward orientation may be affected, however, by the undercounting of Modern artifacts, especially tile, in the 1999 season.
160 *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x).
161 *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75), Medieval (https://n2t.net/ark:/28722/k26m3pq5x), and *Medieval-Modern* (https://n2t.net/ark:/28722/k2pk0tc4g).
162 Pettegrew and Caraher 2021.
163 *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).

164 *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).

165 At Vigla (https://www.geonames.org/12514009/lakka-skoutara.html) and Vayia (https://www.geonames.org/9409078/vayia.html), archaeologists defined several *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75) structures as LOCAs (9036 [https://n2t.net/ark:/28722/k2cg01v5w], 9066 [https://n2t.net/ark:/28722/k24x5n492], 9068 [https://n2t.net/ark:/28722/k2df72r3m], and 9119 [https://n2t.net/ark:/28722/k2zc88h05]). Top 25 units of Modern, *Early Modern*, or *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x) date overlap only with three LOCAs [Ayia Paraskevi (9121; https://n2t.net/ark:/28722/k26t10j66], Ayios Kosmas [9075; https://n2t.net/ark:/28722/k2xd17k6x], and Boulberi [9006; https://n2t.net/ark:/28722/k2j10cs56]) that were defined from artifact densities.

166 Mean distance between top 25 Modern units and LOCAs was 95 meters, median distance 50 meters.

167 *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).

168 Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

169 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d).

170 Roman (https://n2t.net/ark:/28722/k2g16dz03).

171 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2g16dz03).

172 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), Modern (https://n2t.net/ark:/28722/k2g16dz03).

173 Protogeometric–Hellenistic (https://n2t.net/ark:/28722/k2ks74r5d), Roman (https://n2t.net/ark:/28722/k2g16dz03), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x).

174 Medieval (https://n2t.net/ark:/28722/k26m3pq5x).

175 See, for example, Tartaron et al. 2006; Caraher, Nakassis, and Pettegrew 2006; Pettegrew 2015, 2016; Pettegrew and Caraher, 2025; Prehistoric (https://n2t.net/ark:/28722/k2qj7vk08), Roman (https://n2t.net/ark:/28722/k2g16dz03).

176 Medieval (https://n2t.net/ark:/28722/k26m3pq5x), *Ottoman/Venetian* (https://n2t.net/ark:/28722/k2tb1j606), *Modern Present* (https://n2t.net/ark:/28722/k24m9mn1x), and *Early Modern* (https://n2t.net/ark:/28722/k20v8wt75).

177 Roman (https://n2t.net/ark:/28722/k2b85q477).

Chapter 13
Period Distributions: Layering the Roman Eastern Corinthia

The commencement of a survey in the eastern Corinthia in 1999 shattered standing assumptions and expectations about regional patterns of Roman land use. Prior to the survey, scholars had frequently characterized the settlement of the Roman colony during its first two centuries as "nucleated," centered in or immediately around centers like Corinth and Kenchreai, and viewed the Isthmus as largely uninhabited and even disengaged from agriculture.[1] Most scholars had not thought much about later Roman settlement patterns, despite foundational investigations of the region's late antique and early Byzantine villas and settlements in the 1980s and 1990s and new work on centuriation patterns.[2] The first year of survey—the very first week, even—teams recorded copious Roman pottery seemingly everywhere, even on marginal lands of Mt. Oneion. We quickly recognized that the Romans, and especially the later Romans, were ubiquitous in a truly busy countryside (Sections 11.4 and 12.4).

Since the completion of the survey, my colleagues and I have worked from different angles to study, parse, and understand the Roman period (Ch. 4, Appendix I). Some of that work has drawn attention to the character and interpretation of the *Early Roman* and *Late Roman* ceramic assemblages that indicate the importance of the territory and its constant, albeit contingent, connectivity from the first to the seventh centuries.[3] Other studies have pointed to the distinct pattern of settlement in the region—dense peri-urban zones characteristic of large cities of the Roman Empire[4]—that set it apart from the more common "depressed" early Roman countrysides surveyed in other regions. These studies have also emphasized how a thriving landscape of scattered villas and churches speaks to general regional prosperity in the Roman period,[5] especially in connection with particular historical forces and imperial investments that acted as catalysts for intensive agricultural production, regional connectivity, and trade.[6] A significant spinoff project, the investigation and excavation of cemeteries and settlements at Kenchreai,[7] recorded a thriving community at Corinth's eastern harbor from early to late Roman times.

My goal in this chapter is to show how finer-grained approaches of layering the landscape can serve to fine-tune and balance analysis of chronology in the aggregate (Ch. 12). My overview will analyze fifty standard zones to provide a higher-resolution view of Roman settlement and land use in the region. I'll describe the distributions of traces of Roman occupation, connectivity, and function according to narrower periods—*Early Roman* (Section 13.1), *Middle Roman* (13.2), and *Late Roman* (13.3).[8] I will introduce nuance in three ways. First, I'll attempt to calibrate artifact densities for surface visibility thresholds in zones and units to compensate for the distorting effects of visibility and create a more reliable estimate of densities and hotspots. Second, I will break down the challenges of differential visibility of each of these periods to provide a critical survey approach. Third, I will employ nearest neighbor analysis and near analysis to create a foundation for understanding spatial patterns and illuminate Roman patterns and preferences for habitations over seven centuries. Finally, I will introduce other kinds of evidence, especially excavation and ancient texts (13.4), that point us to interpretations of human activities and buildings in the landscape—a theme we will explore further in the final chapter.

13.1. Early Roman Landscapes

The *Early Roman* period in EKAS corresponds to the establishment and growth of the Roman colony at Corinth between the mid-first century BC and mid-third century AD. Corinthians during this 300 year period inhabited most parts of the region but favored the Isthmus in the long term.[9] We must keep in mind that *Early Roman* material is not as visible in survey as *Late Roman* or *Roman* because we did not identify body sherds, or coarse and medium-coarse ware sherds to the *Early Roman* era (Section 11.4).[10] By one estimate, the actual surface assemblages of *Early Roman* should be three to six times greater than the quantity of our sample.[11] We should therefore place no confidence in a view that the absence of *Early Roman* objects indicates the absence of people and instead continue to treat period densities as imperfect approximations of areas of most intensive and/or longest-term behavioral processes of habitation, building, and discard.[12]

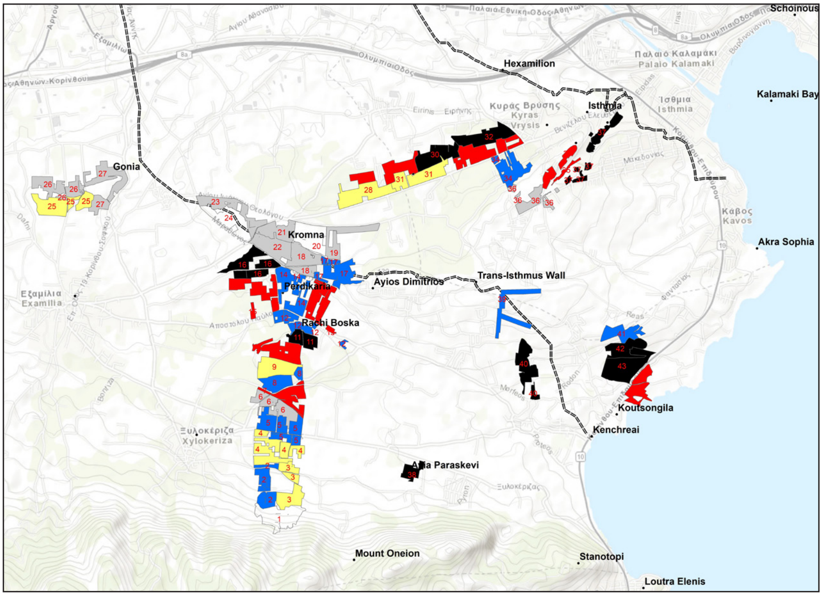


Figure 13.1. *Early Roman* distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. This map does not show zones at Lakka Skoutara in southern Corinthia which produced Early Roman material.

13.1.1. Early Roman Distributions: Zones and Units

During the three centuries of the early Roman period, Corinthians showed a strong and clear preference for habitation of the Isthmus as opposed to the southern territory. Of 7 zones surveyed through standard intensive pedestrian methods in the southern Corinthia, plus 4 other southern zones explored through extensive survey or LOCA investigations, only the zones of Lakka Skoutara (Z49 and Z50) produced *Early Roman* material.[13] The density of *Early Roman* material in these zones (2.4 and 3.7 artifacts / hectare) was very low compared to the average density for all 44 zones with material of the period (average=9.54 artifacts / hectare). Yet, the *Early Roman* densities at Lakka Skoutara were not unappreciable,[14] and the kinds of objects collected—fragments of Koan-type amphoras, thin-walled kitchen ware, and ESA table ware—point to habitation.[15] The distinct presence of *Early Roman* material at Lakka Skoutara contrasts with its absence in other surveyed areas of the southeastern districts, including, notably, the areas of Vigla and Vayia that were so important to residents of earlier periods.[16] The inhabitants of the Corinthia in the period of the Roman colony favored habitation in the agriculturally richest lowland nearest to Corinth—a fact that is clear also in a weighted zonal elevation for *Early Roman* material (93 masl) that is well below the median elevation for all standard and non-standard survey zones (median: 104).[17] It is possible, of course, that we have underestimated the distribution of *Early Roman* material in southern districts due to problems of source identification.[18]

An analysis of *Early Roman* zones on the Isthmus shows patterns that differ in important respects from earlier periods (Ch. 6 and 7).[19] One of the significant differences was the relatively greater importance (top zonal rank) of the areas of Kenchreai and Isthmia. Three of the six zones surrounding Kenchreai numbered among the very densest *Early Roman* zones of the territory (Z40, Z42, and Z43), while the other zones (Z39, Z41, and Z44) had high or middling densities.[20] We can contrast this with the picture of the zones according to total artifact densities (Ch. 10): only two of the six zones near Kenchreai ranked in the top two quintiles of total densities; one was middling in rank; and three ranked in the bottom two quintiles.[21] The zones of Isthmia comprised another significant area in the *Early Roman* period.[22] The very densest (first quintile) *Early Roman* zones were south of the Hellenistic stadium (Z37) and on the western outskirts of Kyras Vrysi (Z30 and Z32), but generally all the surveyed zones surrounding Isthmia produced high to very high *Early Roman* densities, the sole exception being Rachi Marias (Z36) which yielded low total artifact densities for all periods combined.[23] The relatively higher *Early Roman* densities around Isthmia and Kenchreai reflect the importance of both of these sites in the first to third centuries.[24]

Three *Early Roman* districts stand out in zonal analysis. Ayia Paraskevi (Z38), the ridgetop of Rachi Boska (Z10 and Z11), and Perdikaria North (Z16) all produced very high (rank 2) or exceptional (rank 1) *Early Roman* densities.[25] Ayia Paraskevi may have been important due to its proximity to Kenchreai harbor and a southern road from Corinth. Rachi Boska occupied a commanding position over a major crossroads on the Isthmus that extended from the base of Rachi Boska to the northern edges of Kromna. That *Early Roman* material was also very dense at Perdikaria North may reflect either the use of the Examilia quarries, which lay immediately to the north, or the major adjacent ancient road between Corinth and Isthmia.[26] Elsewhere in that valley, *Early Roman* settlement and activities notably concentrated southward toward Rachi Boska, with densest zones in the districts of Perdikaria and Kesimia South (Z12, Z13, Z14, Z15, Z16, and Z17).[27] Other areas

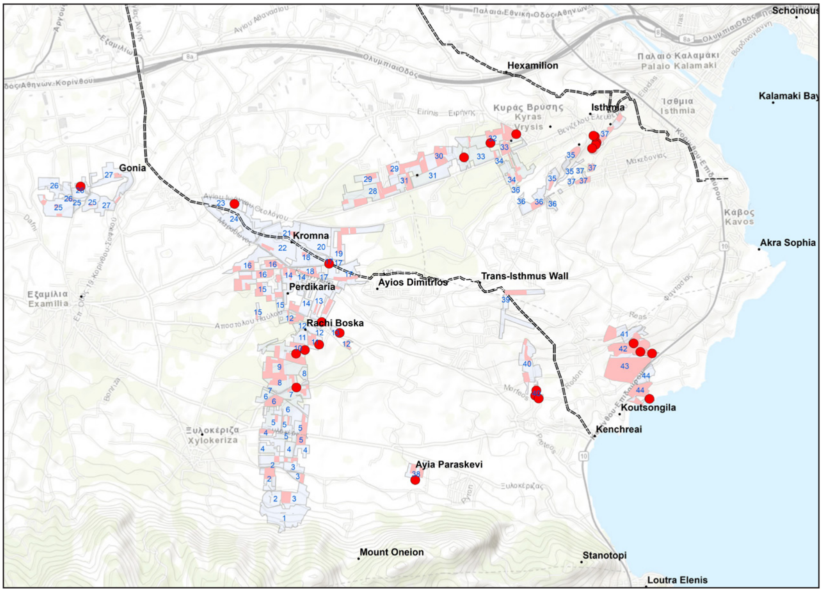


Figure 13.2. *Early Roman* Distributions on Isthmus. Map shows 25 densest Early Roman units (red dot) against backdrop of *Early Roman* carpet (rose shade). Numbers indicate zones.

of high *Early Roman* density (Rank 2 densities), relative to the rest of the territory, included Marougka North (Z7) and Ayios Kosmas North (Z29).[28]

Other zones show low to very low density in the *Early Roman* period.[29] The upper slopes of Oneion are devoid of *Early Roman* material, although that might be expected since that zone produced little material at all.[30] The paucity of material at Kromna and Boulberi along the former line of the Hellenistic trans-Isthmus wall zones is striking given the importance of that area for earlier periods. This area had great importance in the *Classical–Hellenistic* periods as a community at the gate of a major fortification wall across the Isthmus (Ch. 12). The meager materials in these districts—two zones, for example, produced no *Early Roman* material at all—suggest that the area did not play a role as a center of habitation after recolonization.[31] One wonders whether the fortification was partly dismantled in this area and whether Romans intentionally avoided resettling an area largely associated with preexisting cemeteries, even if they did bury their own dead there.[32] In any case, the scarcity of *Early Roman* from Boulberi to Kromna to Ayios Kosmas South is unexpected given earlier patterns.[33]

The distribution of the 192 standard units with *Early Roman* material and the 25 densest *Early Roman* units provides a finer-grained view of settlement and land use not obvious from zonal analysis alone.[34] In some zones, units cluster in ways that could suggest small sites like farms or villas, while in others, the carpet of *Early Roman* material is more continuous.[35] Generally, the units with *Early Roman* pottery have a clustered pattern across the landscape.[36] Average nearest neighbor analysis of *Early Roman* units in ArcGIS, for example, suggests a clustered pattern where observed average distance was 95 meters. The nuclei of *Early Roman* units, combined with the character of finds (see below), points to scattered habitation and activity areas.[37]

In the southern Corinthia, *Early Roman* survey units at Lakka Skoutara were distributed over an area of nearly a kilometer, but clearly formed a nucleus centered around five units within a radius of 150 meters at the eastern part of Zone 49 and the western part of Zone 50.[38] Two units in this nucleus rank in the second quintile for *Early Roman* densities in EKAS—a pattern that was largely invisible from zonal analysis.[39] The pattern at Lakka Skoutara may suggest farms or a villa centered in the middle of the valley.

Across the Isthmus, *Early Roman* material forms a low-density continuous carpet with occasional spikes in density. The pattern confirms our picture from the zones. Particularly striking is the scarcity (and in some cases absence) of *Early Roman* material in the area of Kromna, Boulberi, and Kesimia; objects were found in only nine units of Zones 17–24.[40] Particular nodes around Isthmia and Kenchreai, on the other hand, appear especially important. Thus, we find a nucleus of units immediately south and southwest of the later stadium, a sliver of units on the western approaches to Isthmia about a kilometer west of the sanctuary, the district surrounding the West Foundation, discrete blocks around Kenchreai harbor, and the area of Ayia Paraskevi.[41] The main transect north of Oneion produced several core nuclei on and below Rachi Boska (Z10, Z11, and Z12), Marougka (Z7), and the lowland area of Perdikaria, but moderate density (middle quintile) units are also evident at the junctions of Zones 2–3 and Zones 5–6.[42] An extensive carpet of *Early Roman* objects with multiple peaks in densities spreads across most of the zones of Perdikaria and points to the reuse of this crossroads in Roman colonial time—although the core of settlement falls well south of previous habitation at Kromna.[43] One final surprising pattern is the middle to high density units in the districts of Yiriza and Gonia.[44] Two units in these areas rank among the densest quintile of *Early Roman* units and one numbers among our 25 densest units. Clearly scattered settlement existed in this area too.[45]

Collectively the distribution of *Early Roman* point to a continuous spread of objects on the Isthmus with occasional spikes in density that suggest areas of greater human investment or longest activity over the course of three centuries.[46] The thickest and most extensive spreads are found right around Kenchreai and Isthmia, Ayia Paraskevi, and the ridge of Rachi Boska, but we also see scattered concentrations elsewhere.[47] Not all areas of the eastern Corinthia have substantial *Early Roman* signatures:[48] the southern Corinthia lacks material apart from that at the zones of Lakka Skoutara, while on the Isthmus, the slopes of Oneion, Boulberi, Kromna, Ayios Kosmas, and the Ayios Dimitrios Ridge produced traces at best.[49] Our index of activity clearly underestimates traces of *Early Roman* body sherds, especially coarse ware and medium coarse ware (Section 11.4), but an overall pattern still emerges:[50] settlement thickened across the region in the two and a half centuries after Caesar's refoundation suggestive of the aggregate effects of farming and inhabiting the landscape.

13.1.2. Early Roman Artifacts: Connectivity, Chronology, and Function

The assemblage of *Early Roman* artifacts collected during survey aids in finetuning our picture of settlement and land use. Examining analyzed material—regardless of collection method or unit type—gives us the broader view of connectivity, chronology, and function of the eastern Corinthia.[51]

Our evidence for regional connectivity during the early Roman period is coarse but straightforward: 254 imported amphora and table ware fragments indicate a primary orientation to Aegean markets, less intense connections to the more distant eastern Mediterranean, and few connections with the west.[52] Most of the identified *Early Roman* amphoras, for example, are Koan-type (n=112) vessels, with a small number of Rhodian amphoras (n=4), suggesting close connections with southwest Anatolia.[53] Of the 138 imported table ware fragments, only 2 fragments of Arretine Ware come from Italy.[54] The other 99.2% of imported *Early Roman* table wares—all Eastern Sigillata—originate in the east, especially the western coast of Asia Minor (ESB, nearly 60% of imported table wares) and to a lesser extent Syria (ESA, ca. 9% of imported table wares).[55] This pattern parallels documented assemblages at Isthmia and reflects the orientation of the eastern Corinthia to Aegean markets and probably the intensification of habitation in the territory after the mid-first century.[56]

The chronological attributes of these imported wares indicate more intensive discard after the mid-first century AD.[57] We find support for this in that the earliest types of fine wares—Arretine and Eastern Sigillata A—make up only a quarter of imported table wares and tend to date (in deposits in Corinth at least) to the first century (ESA is more common prior to the mid-first century AD).[58] They are documented in Zone 26 near Yiriza, along the ancient road west of Isthmia, at Lakka Skoutara (Z49), and the district near Rachi Boska and Kenchreai (Z40, Z42, and Z43).[59] Their near absence around Isthmia supports arguments (made from other evidence) that the festival returned to the Panhellenic sanctuary just before the middle of the first century AD.[60] The more common kind of table ware in the eastern Corinthia is ESB (n=23), with its subtypes ESB1 (n=7), a predominantly first-century ware, and especially ESB2 (n=55), which typically dates from the later first to early third centuries.[61] ESB1 is generally scarce and found in some of the same areas as earlier material: Yiriza South, near Panorama at Kenchreai, and below Rachi Boska.[62] It is also documented in one unit southwest of the stadium at Isthmia (Z37) and the zone of Ayia Paraskevi.[63] ESB2, on the other hand, is abundant and ubiquitous, and its presence points to a renaissance of habitation that began a century after colonization—probably in conjunction with the massive imperial investments in the region of Nero and his successors.[64]

The widespread distribution of amphoras, table wares, kitchen wares, and occasional other artifact types like lamps, support the view, argued fully elsewhere,[65] that the *Early Roman* surface assemblage represents the processes of habitation, dining, and agricultural activities accumulated over a couple of centuries.[66] This thick habitation in the period after Caesar's refoundation, especially in the later first and second centuries, signals the growth of Corinth's urban periphery—through scattered farms, houses, and buildings—and the growing fortunes of the sites of Isthmia and Kenchreai. While the early Romans clearly favored some areas over others, the extent of distribution of high-density areas indicates a marked change from earlier periods. The pattern of settlement and land use in the eastern Corinthia most closely parallels the suburban zones around other major Roman cities of the eastern Mediterranean such as Syrian Antioch.[67]

13.2. Middle Roman Landscapes

The *Middle Roman* period in EKAS is the least common of the three sub-Roman chronotype periods, in large part because its ceramic assemblage is the least visible, recognized primarily through highly-diagnostic Aegean Red Amphora handles and body sherds, secondarily through occasional imported table ware and kitchen ware fragments (cf. Section 11.4).[68] As a sub-period carved out of broader chronotype periods, locating *Middle Roman* depends upon identifying a small number of type fossils that are narrowly dated to these centuries.[69] We should expect that a significant amount of unidentified material of *Middle Roman* date (AD 150–400) lies hidden within other chronotype periods since even an identified *Middle Roman* amphora handle may be proxy for hundreds of missed body sherds, rims, and toes.[70] Despite the relatively poor visibility of the period, EKAS documented artifacts in 37 standard survey units—plus 7 additional LOCAs, experimental units, or extensive units—in 29 of the 50 zones of the survey.[71] The amount of *Middle Roman* material is low compared to earlier and later Roman periods but its widespread presence over the survey territory speak to a continuation of earlier patterns of habitation in the later second to fourth centuries.[72] Because *Middle Roman* quantities are so low, presence/absence will be more reliable for discussion than density.[73]

13.2.1. Middle Roman Distributions: Zones and Units

Despite the relative scarcity of *Middle Roman* pottery, all broad areas we examined in the eastern Corinthia generated artifacts dating to the late second to fourth centuries.[74] In the southeast territory, for example, one of the two zones (Z50) at Lakka Skoutara that produced *Early Roman* material also yielded an Aegean Red 1 Amphora handle.[75] We also noted new evidence for the *Middle Roman* period in the district of Kato Vayia (Z46), where teams investigating LOCA 9035 discovered an Aegean Red 1 Amphora handle.[76] The inhabitants of the Corinthia in this period continued to favor the Isthmus, but we can see a trend toward inhabiting slightly higher elevations, suggesting, perhaps, a push into marginal lands. The average weighted elevation of zones with *Middle Roman* pottery was 104 masl, 10 meters higher than the typical elevation of *Early Roman* pottery.[77] The poorer visibility of the period, however, should make us wary of placing too much confidence in extrapolating patterns from a handful of objects, since the quantities of material of this date could change through resurvey and revisits, as has often happened (see below).

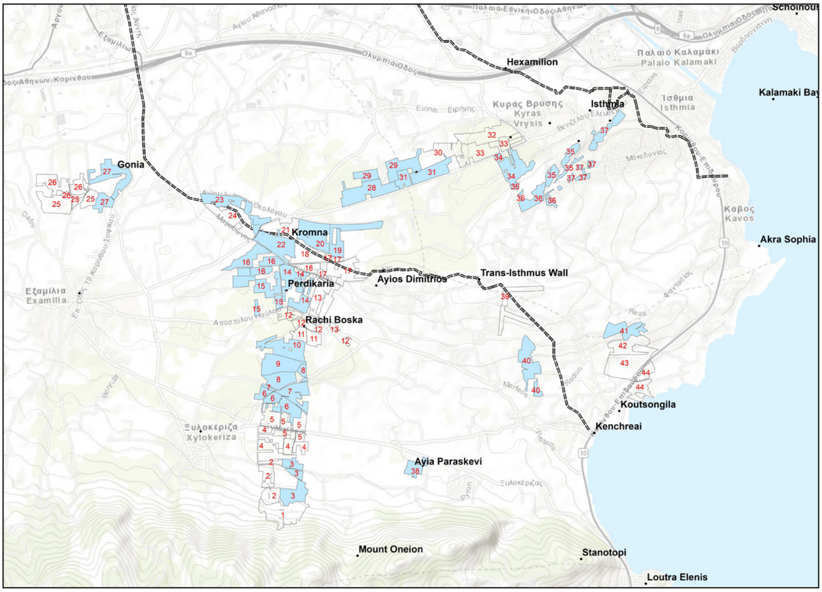


Figure 13.3. Map of zones indicating presence of *Middle Roman* artifacts on Isthmus (blue shade). This map does not show the zone at Lakka Skoutara in southern Corinthia that produced *Middle Roman* material.

The Isthmus remained the focus of human habitation and land use in the region in the *Middle Roman* era.[78] Every broad area with *Early Roman* artifacts yielded *Middle Roman* artifacts, although not always in exactly the same zones of the earlier period.[79] In the main transect between Oneion and Boulberi (Zones 1–24), the processing team recorded *Middle Roman* pottery in two-thirds (14 of 21) of those zones with *Early Roman* artifacts, and documented its presence in one additional zone (Z20).[80] In Zone 3, for example, the area of a definite elite residence of Roman date—the Villa of the Pigdog (LOCA 9228)—teams discovered Aegean Red amphora sherds during survey.[81] The zones of Marougka and the southern stretch of the Rachi Boska ridge (Z5–Z8)—a significant district in the *Early Roman* period—produced not only Aegean Red 1 Amphora handles but also (after revisits to the area) Çandarli Ware Form 3 and Form 5 sherds.[82] The zones between Rachi Boska and Perdikaria also remained an important area of land use and habitation in the *Middle Roman* period;[83] repeated revisits to a villa site (LOCA 9221) in Zone 12 below the height of Rachi Boska led to the discovery of fragments of an Aegean Red 2 Amphora and ARS Form 50.[84] The lowland of Perdikaria (Z15 and Z16) likewise showed a light but consistent signature of *Middle Roman* activity (Aegean Red

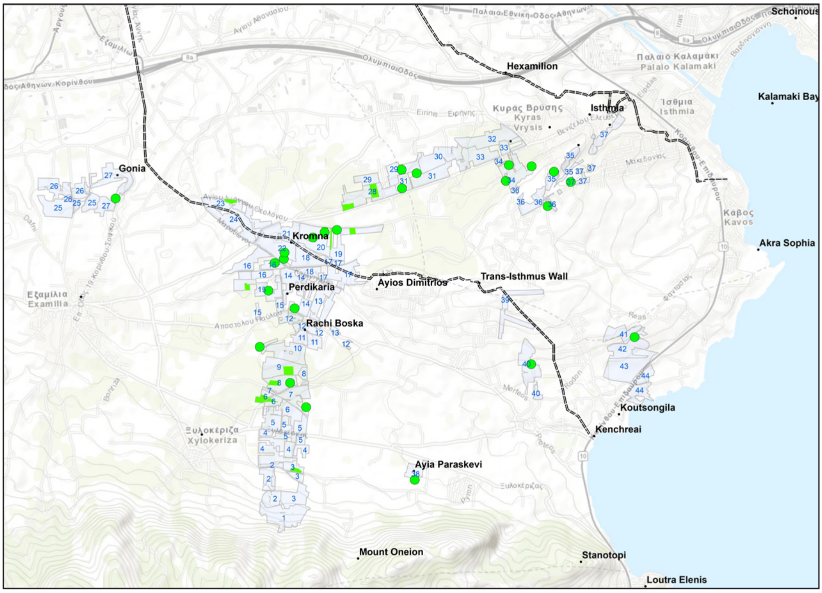


Figure 13.4. *Middle Roman* distributions on Isthmus. Map shows 25 densest *Middle Roman* units (green dot) against backdrop of Middle Roman units (green shade).

1 Amphora sherds), while the vicinity of Kromna (an area with very low *Early Roman* densities) yielded Aegean Red 2 Amphora and ARS Form 50 sherds.[85]

Notable *Middle Roman* assemblages on the Isthmus were also found in the strip of units between Ayios Kosmas and Isthmia.[86] The area around the West Foundation (Z28, Z29, and Z31) produced a considerable density of artifacts: objects in these zones included 3 Vertical Rim Cooking Pot rims and 15 Aegean Red 2 Amphora fragments.[87] Another significant area was a group of zones south and southwest of Isthmia (Z34, Z35, Z36, and Z37), which produced a smattering of Aegean Red 1 and Aegean Red 2 Amphora sherds.[88] The signature is light, but the even presence of material suggests that the environs of Isthmia were important areas of habitation in the later second to fourth centuries—a time consistent with the occupation of the East Field at Isthmia. Other zones of the Isthmus produced isolated Aegean Red amphora sherds at Gonia (Z27), Kenchreai Northwest (Z40), and Ayia Paraskevi (Z38).[89] Panorama North yielded a Çandarli fine ware sherd (Z41).[90]

Patterning the *Middle Roman* period by survey units calibrated for visibility shows that isolated *Middle Roman* survey units are scattered across the survey region, forming occasional nuclei of units in the same area, as they had in the *Early Roman* period.[91] The zones of Marougka, Perdikaria, Kesimia and Kromna Northeast, Ayios Kosmas, Isthmia Southwest, and Rachi Marias, for example, all produced concentrations that point to intensive activity areas over time. The top 25 densest of the 43 *Middle Roman* units are spread evenly across the survey territory; no single area clearly dominates.[92]

The *Middle Roman* period in EKAS has a clear spatial relationship with earlier Roman areas.[93] The top 25 *Middle Roman* units almost never occupy the same place, or even the same zone of the top 25 *Early Roman* units, but the relationship between *Early Roman* and *Middle Roman* is undeniable.[94] Units of the two periods are consistently close to one another: 83% of *Middle Roman* units lay within 50 meters of *Early Roman* units, and 92% within 100 meters.[95] Near analysis through GIS suggests the average distance between the top-density *Middle Roman* units and all *Early Roman* units is only 29 meters, while the average distance between *Early Roman* and *Middle Roman* units generally is only 22 meters.[96] Given the relative scarcity of *Middle Roman* artifacts, these patterns of proximity strongly suggest continuity of habitation.[97]

While the *Middle Roman* period is underrepresented in the eastern Corinthia, what we can see suggests *Middle Roman* material is scattered evenly over the Isthmus in a continuous pattern that grows out of earlier periods.[98] This does not mean there are not real differences—the zonal patterns are distinct—but we can at least see continuities at the broadest level. A greater recognition of this partly invisible landscape might change our picture of fluctuating densities.

13.2.2. Middle Roman Artifacts: Connectivity, Chronology, and Function

Compared to the *Early Roman* period, *Middle Roman* artifacts in EKAS are fewer and more homogeneous.[99] *Middle Roman* material included 61 objects collected (via all methods) that represent 7 distinct chronotypes—a pale shadow of the earlier period with its 393 artifacts representing 16 different object types.[100] While the *Early Roman* period included a balance of amphoras, fine wares, and kitchen wares, as well as lamp fragments and pithos sherds, the *Middle Roman* period consisted mainly of Aegean Red Amphora types (n=52), a small number of fine wares (n=6), and a handful of cooking pot sherds (n=3).[101] The *Middle Roman* era was a period largely identified by a handful of type fossils.[102]

The meager quantity of fine wares does not really allow us to parse chronology or function. Standard chronotype survey generated only 3 table ware fragments to which LOCA investigations and revisits produced another 3 sherds. Two Çandarli ware body sherds, a Çandarli Form 3 rim, a Çandarli Form 5 base, and 2 African Red Slip Form 50 rims fit comfortably in a later second to third century date range, while the Aegean Red Amphoras—the dominant type fossil of the *Middle Roman* period—suggests a third to fourth century range.[103] Ceramic chronologies are fuzzy, of course: it is possible, for example, that the Çandarli Ware body sherds actually date to earlier in the second century and are therefore *Early Roman* (even as it is possible that some of the ESB2, an abundant fine ware we have classified as *Early Roman*, actually dates to the third century.)[104] But the probabilities, based on trends of deposits in Corinth, suggest otherwise, and the examples of Çandarli Form 5 and ARS Form 50 at least are clear third century types.[105] As for function, the frequent presence of amphora, the primary type fossil of the *Middle Roman* period, is consistent with habitation, storage, and agricultural production.[106]

Even if we were to calibrate from identified pottery in an effort to restore the missing *Middle Roman* landscape, we would still have to recognize that the later third and fourth centuries appear dim in comparison with earlier and later periods.[107] Connectivity, above all, is harder to assess. Imported table wares are scarce compared to earlier and later centuries and that points to abatement in longer-distant connections, the predominance of local wares (unidentified as *Middle Roman* in EKAS), and/or less intensive forms of activity.[108] Our type fossils suggest a continuation of the earlier Roman pattern of relying on Aegean networks.

It would strain the limits of our sample to deduce widespread abandonment or settlement discontinuity (cf. Section 14.1). We simply do not have enough information. The evidence, as I have read it, points to the continuity of patterns of trade and settlement established in the first two centuries of Roman rule. Yet the survey data does indicate a dimmer period in the long Roman era that is probably an artifact of geopolitical and cultural reconfigurations of the region's place within Mediterranean circuits. The murky picture of Isthmia in the *Middle Roman* period, especially the probable discontinuity of Panhellenic contests in the third century, had definite effects on the settlement of the region,[109] but more research on regional ceramic types may gradually brighten our picture of the countryside in this period.

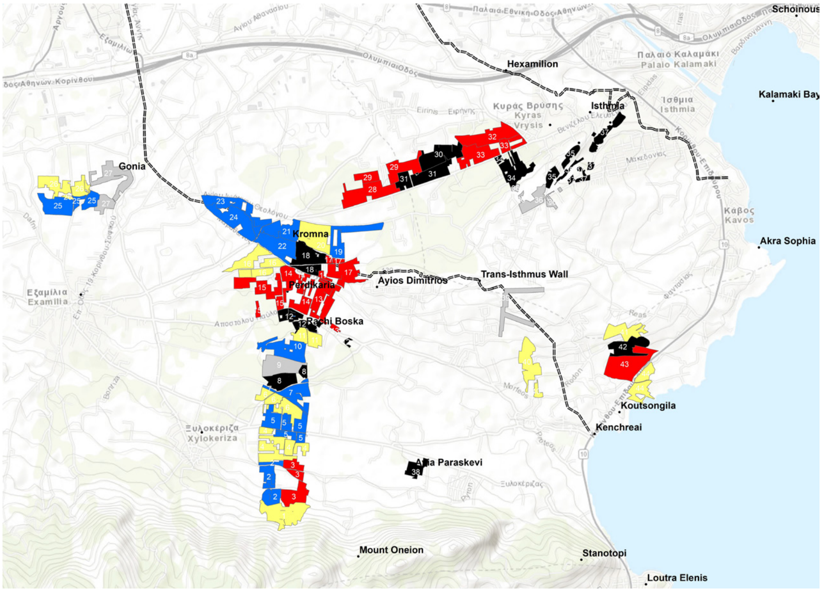


Figure 13.5. *Late Roman* distributions on the Isthmus showing quintile densities by zone: Q1: Black, Q2: Red, Q3: Blue, Q4: Yellow, Q5: Light Gray. This map does not show zone at Lakka Skoutara in southern Corinthia which produced Late Roman material.

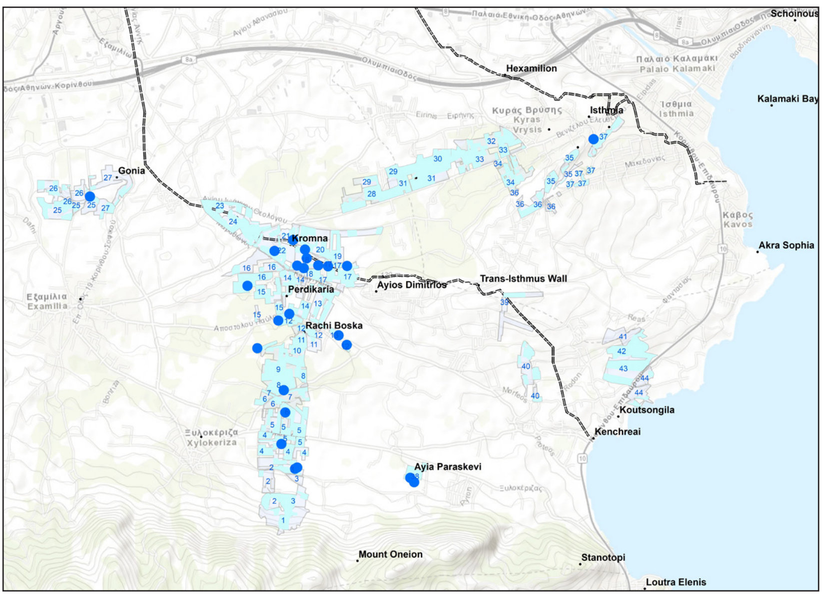


Figure 13.6. *Late Roman* distributions on Isthmus. Map shows 25 densest Late Roman units (blue dot) against backdrop of Late Roman carpet. Numbers indicate zones.

13.3. Late Roman Landscapes

The *Late Roman* period (AD 250–700) in the eastern Corinthia presents the analyst with a series of opportunities and challenges that are completely different than those of the *Middle Roman*.[110] The assemblage of objects (n=2200) is exceptional when compared to earlier and later periods: only the *Archaic–Classical* (n=2081) and *Classical–Hellenistic* (n=2185) periods produce similar quantities.[111] The extent of material is also impressive, as units with *Late Roman* artifacts are found in nearly one out of every two (577/1287) survey units surveyed in standard ways.[112] The abundance and visibility of the *Late Roman* period indicate that our sample presents a generally reliable reflection of the surface material dating from this period and signals a territory dense with farms, villas, churches, and rural habitation.[113]

13.3.1. Late Roman Distributions: Zones and Units

Late Roman material was found in all 50 standard zones of the survey, making it the most pervasive of the narrow periods of the survey.[114] No other narrow period was as spatially extensive, although *Archaic–Classical*, *Classical–Hellenistic*, and the periods follow close behind.[115]

Material of this period could be found in most surveyed areas, but there were clear differences in density between the Isthmus and the southern territory.[116] For example, Lakka Skoutara, an upland valley historically suitable for farming, generated a substantial carpet of material spread over 700 meters.[117] Such a carpet suggests former habitation and cultivation, but the densities ranked in the lowest quintile for the survey region. EKAS did not detect a *Late Roman* presence in the highest elevations of the survey region—for example, on the peaks of Mt. Oneion (Z52 and Z53), where field teams spent countless hours documenting fortifications of Hellenistic and Venetian date, or in the hilly zones of the southern Corinthia, which were canvassed by the extensive team. Extensive survey and revisits to the *Classical–Hellenistic* tower site at Lychnari (Z57), the ridge east of Ano Vayia (Z54), or the peaks above Lakka Skoutara (Z55 and Z56) detected no *Late Roman* material.[118] The coastal ridges of Vigla (Z45) and Vayia (Z46 and Z47) likewise yielded only a handful of utilitarian ware fragments of *Late Roman* date.[119] The *Late Roman* period in some respects mirrors *Middle Roman*, with a mean weighted elevation value of 102 masl, on par with the median zonal elevation for the survey as a whole (104 masl), but well below pre-Roman periods (e.g., *Classical–Hellenistic* period = 180 masl).[120] The inhabitants of the region favored the lowland closest to Corinth: that at least is where most material was discarded.

The pattern on the Isthmus itself suggests scattered areas of moderate (Quintile Rank 3) to very high (Rank 2) to exceptional density (Rank 1). The densest scatters were found in the vicinities of Ayia Paraskevi (Z38) and Panorama South (Z42), Isthmia (Z34, Z35, and Z37), the West Foundation (Z30 and Z31), Rachi Boska South (Z8, LOCA 9002) near Marougka, Rachi Boska (Z12, LOCA 9221), and Kromna Southeast (Z18).[121] But in fact the entire area south and west of Isthmia, other than Rachi Marias (Zones 28–37), produced very high *Late Roman* densities, as did most of the zones between the Rachi Boska Ridge and Kromna (Z12–Z18) and the lower slopes of Oneion in the area of the Villa of the Pigdog (9228).[122] Between these high-density areas are zones with middling densities (Rank 3), such as Yiriza South, the district of Kromna and Boulberi, and other areas between Oneion and Rachi Boska.[123]

Zonal analysis sheds light on long-term continuities and changes from previous periods. Some zones with *Late Roman* material show intensive use continuing from the *Middle Roman* period (Z2–Z3, Z14–Z15, Z28–Z29, Z31, Z34–Z37, and Z38).[124] Other zones, such as those surrounding Isthmia, Panorama South, Ayia Paraskevi, Marougka, Rachi Boska, and the Perdikaria valley, yielded the highest quintile of densities in both the *Late Roman* and *Early Roman* periods—an indicator of long-term continuity or reuse.[125] The densest *Late Roman* zones are more evenly spread than those of the earlier period, suggesting an infilling of the territory over time with houses, farms, and buildings, although the greater visibility of the period in survey may exaggerate its presence relative to earlier periods.[126] The contrast between periods is sharpest in the districts of Kromna, Boulberi, and Kesimia, which were largely devoid of *Early Roman* activity.[127]

Late Roman units were ubiquitous in most zones of the survey area and spaced closer together than those of the earlier Roman period.[128] Average nearest neighbor analysis indicates a clustered pattern with the average distance between units being 63 meters. The very densest survey units of *Late Roman* date, calibrated for surface visibility (top 25), are distributed over the main transect between the slopes of Oneion and Kromna, clustering especially in the southern districts of Kromna (Z18 and Z22), in a ring below the Rachi Boska ridge (Z12 and Z13), at Ayia Paraskevi (Z38), and the northern part of the slopes below Oneion.[129] One of these is located south of the stadium at Isthmia (Z37), but Isthmia and Kenchreai did not generally produce the densest of the densest units in the survey region.[130] The top ten percent of units with *Late Roman* material (a slightly larger grouping of 57 units) shows a series of clusters over the entire Isthmus separated on average by 309 meters.[131]

Individual units with *Late Roman* pottery clearly relate to those with *Early Roman* artifacts.[132] The average distance between the top 25 *Late Roman* and *Early Roman* units was 36 meters, while *Late Roman* units were, on average, 23 meters apart from *Early Roman* units.[133] To put it another way, 82% of units with *Late Roman* artifacts were located within 50 meters of an *Early Roman* unit, and 93% fell within 100 meters.[134] The top 10% densest *Late Roman* units overlap or nearly overlap units that ranked in the top 25 *Middle Roman* and *Early Roman* densities in a dozen zones (Z8, Z10, Z12, Z17, Z22, Z26, Z31, Z34, Z37, Z38, Z40, and Z42).[135] The pattern reminds us of the long-term continuity and stability of habitation during the long Roman period.

13.3.2. Late Roman Artifacts: Connectivity, Chronology, and Function

The *Late Roman* era in EKAS marked one of the richest and most diverse assemblages of the survey. The corpus consists of 2,200 objects—an assemblage 36 times greater than *Middle Roman* and 5.5 times more than *Early Roman*.[136] Those artifacts represented a wide variety of object classes in an impressive 31 distinct chronotypes. Artifacts collected during survey include an assortment of table wares, amphoras and utilitarian vessels, kitchen wares, lamps, coins, terracotta weights, and ceramic beehive fragments.[137] Even if our impression of the incredible densities of this period reflects certain classes of highly visible pottery (Section 11.4), the *Late Roman* era still clearly marked one of the most impressive expressions of human activity in the region's expansive history.[138] Habitation and land use at this time were more intensive than in earlier Roman centuries, even if that difference was less explosive than might appear from an uncritical read based on *Late Roman* amphora sherds.[139]

The array of fine wares and utilitarian vessels indicate the region's clear orientation to eastern markets, especially those of the Aegean and the western coast of Asia Minor. The major fine ware type is Phocaean Ware, a product of Phocaea in the province of Asia; about 85% of all imported *Late Roman* fine wares belonged to this group.[140] Table wares were imported from nearby eastern sources—Gouged Ware from Athens, for example, formed 2% of imported table wares—as well as more distant lands such as Egypt (1%) and Cyprus (2%).[141] The only western products were 2 African lamp fragments and some African Red Slip table ware, which was found in small quantities (10% of imported

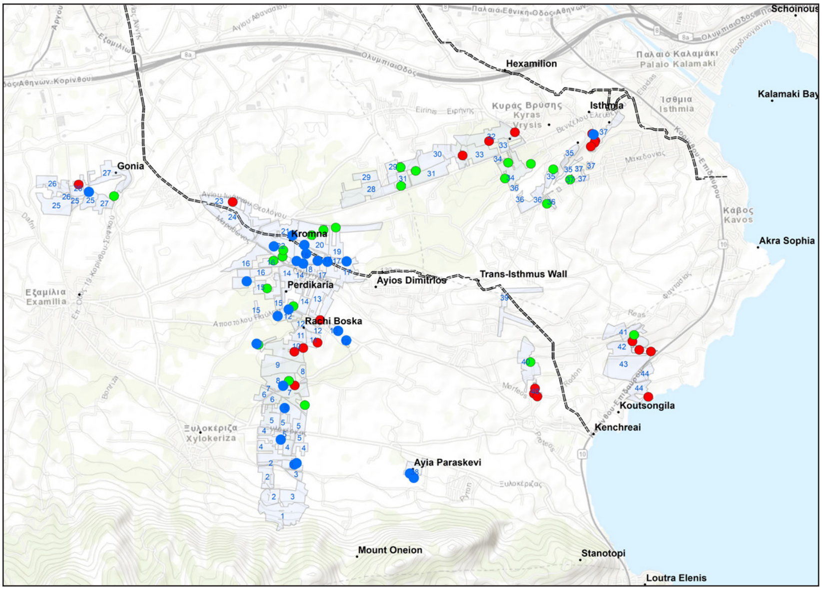


Figure 13.7. Distribution of densest *Early Roman*, *Middle Roman*, and *Late Roman* Units on Isthmus. Red = Early Roman; Green = Middle Roman; Blue = Late Roman.

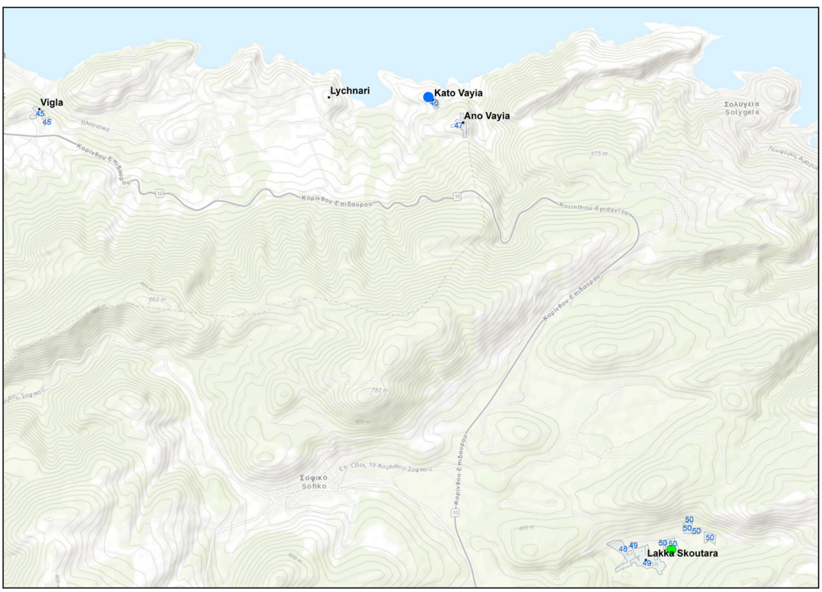


Figure 13.8. Distribution of densest *Early Roman, Middle Roman*, and *Late Roman* Units in Southeast Territory. Red = Early Roman; Green = Middle Roman; Blue = Late Roman.

fine ware, .8% of the entire assemblage), and, to judge from identified types (Form 99 and Forms 104–106), only in the latest part of the period.[142] Imported amphora types again underscore eastern markets: Late Roman 2 Amphoras from the northeast Peloponnese or the Aegean are predominant (n=148), followed by Palestinian Amphora types (n=101) and Late Roman 1 Amphoras from or near Cyprus (n=29).[143]

It is tricky to tease chronology from even a good sample of surface assemblages, but, on the whole, the evidence suggests that the majority of artifacts entered the ground between the later fourth and early seventh centuries. All of the finely typed table wares (ARS Form 99 and Forms 104–106, Egyptian Red Slip, Cypriot Red Slip, and Phocaean Ware Form 3, Form 4, Form 9, and Form 10) support this view, as do the *Late Roman* amphora types (Late Roman 1, Late Roman 2, and Palestinian).[144] The great quantities of Combed Ware and Spirally Grooved Ware in the survey commonly belong to *Late Roman* amphoras or jugs dated from local excavations to the fifth to seventh centuries.[145] We cannot rule out the possibility that some material dates to the earlier fourth century, but as we noted in our discussion of the *Middle Roman* period, specific artifact types of the later third to fourth centuries are scarce. At least a dozen objects—amphoras, narrow combed ware, kitchen ware stewpots, and lamps—date to the late sixth to seventh centuries and that is probably a significant underestimate of seventh century material actually present in the region.[146]

Alongside this variety of table wares and amphora types, a number of *Late Roman* chronotypes enrich our picture of the assemblages of this era. About 170 kitchen ware fragments attest to food preparation and dining. Some 9 Late Roman lamp fragments, including African-type mould-made lamps of sixth to seventh century date, mark all that remain of the nocturnal worlds of habitation and ritual contexts in the region. Two coins of fourth to sixth century date featuring busts of the emperor are rare tokens of a rich commercial life that has vanished almost without a trace. A dozen medium coarse sherds of *Late Roman* date that have heavily scored or cross-hatched interiors suggest beehives and point to apiculture in the territory.[147] A couple of amphora lids and three terracotta circular weights, one carved out of a Corinthian tile (0531000005), another with a center hole (1151000004), could point to quotidian activities like weighting nets for fishing.[148]

The *Late Roman* period surely was one of the dynamic periods of the ancient Corinthia, marking the culmination of a seven-century period in the region.[149] That dynamism can be tied at least in part to broader historical forces that include the unique place of the Corinthia

Figure 13.9. Units with *Early Roman, Middle Roman,* and *Late Roman* at Lakka Skoutara in Southeast Territory. Rose = Early Roman; Green = Middle Roman; Hatched Lines = Late Roman.

in the defense of the province of Achaia and efforts of the imperial government in Constantinople to control the west, beginning at the start of the fifth century and continuing to the early seventh century.[150] The yield of this period was one of the richest surface assemblages documented in Greece.

13.4. Interpreting Roman Periods

I wrap up this fulsome overview of the Roman period with a very brief summary of the distinct elements of broader patterns (Figure 13.7). The spatial patterns of Roman material presented here, based on densities of objects calibrated for visibility, correspond closely with my previous estimates of the densest and most diverse areas in the eastern Corinthia, although those earlier studies largely overlooked the southeastern territory. [151] Considered altogether, we see in the broad Roman period an overwhelming focus of habitation on the Isthmus with only spotty appearance south of Oneion. Of the ten standard and non-standard zones of the southern territory, the Lakka Skoutara valley was really the only area that produced an appreciable, albeit low-density, carpet of *Early Roman*, *Middle Roman*, and *Late Roman* fine wares, utilitarian vessels, and kitchen wares, as well as an array of ceramic artifacts

Project	Area	Count	Putative Density
EKAS	3.9 km2	5,846 artifacts	1,499 artifacts / km2
Methana Survey	10.5 km2	1,187 artifacts	113 artifacts / km2
N. Keos Survey	18 km2	327 artifacts	18 artifacts / km2
Laconia Survey	70 km2	817 artifacts	12 artifacts / km2
Oropos Survey	22 km2	500 artifacts	23 artifacts / km

Table 13.1. A comparison of counts and densities of artifacts of Roman date by major survey projects in Greece.

dating to the *Roman* period, including Roman brick and tile.[152] While our sample of the eastern Corinthia was small, the general picture is not in doubt. The Romans made use of the entire territory for farming, resource exploitation, and settlement, but the debris of occupation was especially dense in the most arable lands as well as in the region closest to Corinth.

We can better appreciate the abundance of Roman pottery and imported wares by making comparisons to other regions. Elsewhere I have noted that intensive survey of only 4 km2 of the region produced one of the most remarkable surface assemblages of Roman date known from any survey in Greece.[153] Comparing EKAS with other published regional Greek surveys shows significantly greater numbers despite the lesser area of territory covered through intensive methods:[154]

The EKAS sample of Roman material, based on chronotype collection and grab samples, was 5–18 times greater than assemblages documented in other regions via grab sampling or feature sherds. Factoring for area surveyed, the putative density of Roman objects was 13–125 higher. A comparison of the counts of imported Roman table wares—including African Red Slip from North Africa, Arretine Ware from Italy, Cypriot Red Slip, Egyptian Red Slip, Eastern Sigillata A from northern Syria, and Eastern Sigillata B, Çandarli, and Phocaean from Asia Minor—indicates a significant difference. The 388 imported Roman table ware sherds from EKAS are far more frequent than the counts of the same wares in the surveys of Methana (n=212), Kea (91), Laconia (1) and Oropos (7). Truly the eastern Corinthia in the Roman period marked a level of connection unlike any other documented in Greece.

Roman material was as pervasive as it was abundant in the eastern Corinthia. Broken fragments of amphoras and storage vessels, table wares, and kitchenware, among other classes, litter a majority of the units surveyed by field teams. The Romans, we can say, were mostly everywhere at *some point* between the first century BC and seventh century AD but human activities were—in aggregate—greater in some districts and periods than others. Viewed through the long-term perspective of the first to seventh centuries, the densest areas fell in the district of Isthmia, the road west of Isthmia as far as the West Foundation, Panorama above Kenchreai,[155] Ayia Paraskevi, and the ridge of Rachi Boska. With the exception of Rachi Boska, the long-term perspective indicates a marked eastward gravitation from Corinth toward Isthmia and the Saronic coastline over time. Yet, settlement and land use in the long term were still relatively intensive in zones from the slopes of Mount Oneion to Kromna. What is important to note on the broadest level is that while Rachi Boska, Kromna, Perdikaria, Yiriza and Gonia had zones with middling to high densities in the long term, these areas did not dominate in the way they had before Roman refoundation. Nor were the southern coastal zones of the Saronic as intensively used as they had been in the prehistoric and classical to Hellenistic periods.

This finer view of Roman objects across space (survey units) and time (sub-periods) has revealed intricate fluctuations reflecting the complex processes of intensive land use and settlement within and between the survey zones over a span of eight hundred years. *Early Roman* units were spread evenly across the Isthmus but were notably few in Kromna and Boulberi—the district of the trans-Isthmus wall that was one of the core districts of pre-Roman times.[156] The very densest units tended to concentrate near Kenchreai and Isthmia and to a lesser extent Rachi Boska. *Middle Roman* is largely invisible but its dispersed presence suggests a similar pattern reflecting the continuous built environment of the Isthmus.[157] Concentrations of *Middle Roman* units could be found southwest of Isthmia and in the Perdikaria valley,[158] but individual top-density units were scattered in others area of the Isthmus. *Late Roman* units, on the other hand, were consistently thick and distributed over the Isthmus and the valley of Lakka Skoutara in the south. The very densest units were concentrated around the Rachi Boska ridge and in the Perdikaria-Kromna district but were also scattered between Oneion and Rachi Boska and at Yiriza, Ayia Paraskevi, and Isthmia. The top decile of *Late Roman* units are spread evenly over most of the surveyed Isthmus. While we have not dwelled on functional analysis in this chapter, the kinds of artifacts (amphoras, table wares, and kitchen wares, especially) spotlight domestic and agricultural activities of habitation.

Distributional survey provides fine-grained views of artifact patterns. These views improve on the resolution of a picture first created from aggregates alone. The palimpsest, I have noted time and again, does not predict the densest materials of individual periods. Not only is there very little direct overlap of the densest *Early Roman*, *Middle Roman*, and *Late Roman* units,[159] but there is also limited overlap between these units and the top 10% densest units overall.[160] If we were to focus our gaze on only the densest concentrations in the landscape, we would miss the subtle developments and the invisible periods, especially those periods after antiquity.

Endnotes

1 The classic view is presented in Engels 1990.

2 Gregory 1985; Kardulias, Gregory, and Sawmiller 1995; Kardulias 1995, 2005. For centuriation, see Walbank 1986; Doukellis 1994; Romano 1993, 2000, 2003.

3 *Early Roman* (https://n2t.net/ark:/28722/k2v415907) and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q). Pettegrew 2007; Pettegrew 2011; Pettegrew 2016.

4 Pettegrew 2015.

5 Gregory 2010; 2013, 278–283.

6 Pettegrew 2011, 560; Caraher 2013, 157; Caraher and Pettegrew 2016; Pettegrew 2016.

7 Rife et al. 2007; Korka and Rife 2020; Korka and Rife 2023.

8 *Early Roma*n (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q). My historical study of the Isthmus presented the data according to 26 broader zones only on the Isthmus (Pettegrew 2016, 22–25). The zones adopted for analysis in this chapter reflect to some extent my earlier work but are smaller, geomorphologically distinct, and create a more nuanced picture of artifact patterns.

9 *Early Roma*n (https://n2t.net/ark:/28722/k2v415907).

10 *Early Roma*n (https://n2t.net/ark:/28722/k2v415907), *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

11 *Early Roman* (https://n2t.net/ark:/28722/k2v415907); Pettegrew 2007, 773–774.

12 *Early Roma*n (https://n2t.net/ark:/28722/k2v415907).

13 Lakka Skoutara (https://n2t.net/ark:/28722/k2765x257), *Early Roma*n (https://n2t.net/ark:/28722/k2v415907). Z49 (https://n2t.net/ark:/28722/k2vq3cx4b) and Z50 (https://n2t.net/ark:/28722/k2r21ch4q).

14 The two zones at Lakka Skoutara (https://n2t.net/ark:/28722/k2765x257) ranked 34th and 35th in their *Early Roman* (https://n2t.net/ark:/28722/k2v415907) densities.

15 Koan-type amphoras (https://n2t.net/ark:/28722/k29s2663q), kitchen ware (https://n2t.net/ark:/28722/k21c2f274), and ESA (https://n2t.net/ark:/28722/k2p279q7p).

16 *Early Roman* material at Lakka Skoutara (https://n2t.net/ark:/28722/k2765x257)

17 Habitation in the agriculturally richest lowland (https://n2t.net/ark:/28722/k2cj8v651), *Early Roma*n (https://n2t.net/ark:/28722/k2v415907). This value is the average weighted elevation of *Early Roman* objects in the eastern Corinthia. To produce the weighted elevation value, I multiplied the zonal elevation by the total number of *Early Roman* objects found in the zone and divided that figure by the total number of *Early Roman* objects in the survey territory. Summing these weighted values produces an estimate of typical elevation. This approach

assumes that 100 *Early Roman* artifacts found at, say, 75 meters above sea level, is more representative than 3 *Early Roman* artifacts found at 500 masl. Weighting, in other words, assigns value to the quantities of material in each zones at different elevations. This method is imperfect but it gives a view of the relative difference of elevation per period.

18 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

19 *Early Roman* zones on the Isthmus (https://n2t.net/ark:/28722/k2cj8v651).

20 Six zones surrounding Kenchreai (https://n2t.net/ark:/28722/k23f5682z), Z40 (https://n2t.net/ark:/28722/k2tx3rt3t), Z42 (https://n2t.net/ark:/28722/k2fr09s27), Z43 (https://n2t.net/ark:/28722/k29z9kz8x), Z39 (https://n2t.net/ark:/28722/k2q532076), Z41 (https://n2t.net/ark:/28722/k2kd2b62k), and Z44 (https://n2t.net/ark:/28722/k2668w56g).

21 Six zones surrounding Kenchreai (https://n2t.net/ark:/28722/k23f5682z).

22 Zones of Isthmia (https://n2t.net/ark:/28722/k2zp4gm7z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

23 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Z37 (https://n2t.net/ark:/28722/k22f85c2q), Z30 (https://n2t.net/ark:/28722/k2xp7fq5r), Z32 (https://n2t.net/ark:/28722/k2sx6qx04), Z36 (https://n2t.net/ark:/28722/k2p56137z), Zones of Isthmia (https://n2t.net/ark:/28722/k2zp4gm7z).

24 *Early Roman* (https://n2t.net/ark:/28722/k2v415907). Pettegrew 2016, 148–158, 190–205.

25 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Z38 (https://n2t.net/ark:/28722/k2jh40p5n), Z10 (https://n2t.net/ark:/28722/k2dr38w20), Z11 (https://n2t.net/ark:/28722/k2902k30j), and Z16 (https://n2t.net/ark:/28722/k2571v859).

26 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

27 Z12 (https://n2t.net/ark:/28722/k21g14g02), Z13 (https://n2t.net/ark:/28722/k2wq0dt52), Z14 (https://n2t.net/ark:/28722/k2rx9q11s), Z15 (https://n2t.net/ark:/28722/k2n87pk95), Z16 (https://n2t.net/ark:/28722/k2571v859), and Z17 (https://n2t.net/ark:/28722/k2hh6zs6h).

28 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Z7 (https://n2t.net/ark:/28722/k2cr6803n), and Z29 (https://n2t.net/ark:/28722/k2805j609).

29 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

30 Upper slopes of Oneion (https://n2t.net/ark:/28722/k2474tc52), *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

31 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

32 An important and well-known set of early Roman tombs have been documented along the road between Zone 22 and Zone 24.

33 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

34 192 standard units with Early Roman (https://n2t.net/ark:/28722/k2cj8v651), *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

35 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

36 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

37 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

38 Units at Lakka Skoutara (https://n2t.net/ark:/28722/k2765x257), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Z50 (https://n2t.net/ark:/28722/k2765x257), and Z49 (https://n2t.net/ark:/28722/k2vq3cx4b).
39 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
40 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Zones 17-24 (https://n2t.net/ark:/28722/k2m90nq12).
41 Southwest of the later stadium (https://n2t.net/ark:/28722/k2gh9xw9q), western approaches to Isthmia (https://n2t.net/ark:/28722/k2br9733d), the district surrounding the West Foundation (https://n2t.net/ark:/28722/k2708h88g), Kenchreai harbor (https://n2t.net/ark:/28722/k23f5682z), and the area of Ayia Paraskevi (https://n2t.net/ark:/28722/k2jh40p5n).
42 Below Rachi Boska (https://n2t.net/ark:/28722/k2q24bm5z), Z10 (https://n2t.net/ark:/28722/k2dr38w20) Z11 (https://n2t.net/ark:/28722/k2902k30j), and Z12 (https://n2t.net/ark:/28722/k21g14g02), Z7 (https://n2t.net/ark:/28722/k2cr6803n), Zones 2–3 (https://n2t.net/ark:/28722/k2377sg3v), and Zones 5–6 (https://n2t.net/ark:/28722/k2zk5s735).
43 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
44 Yiriza (https://n2t.net/ark:/28722/k2tt52d89), Gonia (https://n2t.net/ark:/28722/k2tt52d89).
45 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
46 Distribution of Early Roman (https://n2t.net/ark:/28722/k2cj8v651).
47 Around Kenchreai (https://n2t.net/ark:/28722/k23f5682z), Isthmia (https://n2t.net/ark:/28722/k2zp4gm7z), Ayia Paraskevi (https://n2t.net/ark:/28722/k2jh40p5n), and Rachi Boska (https://n2t.net/ark:/28722/k2q24bm5z).
48 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
49 Zones at Lakka Skoutara (https://n2t.net/ark:/28722/k2765x257).
50 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
51 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
52 Imported amphora (https://n2t.net/ark:/28722/k2k93mt3s), table ware (https://n2t.net/ark:/28722/k2fj2x08z).
53 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Koan-type amphoras (https://n2t.net/ark:/28722/k29s2663q), and Rhodian amphoras (https://n2t.net/ark:/28722/k2611gc98).
54 Arretine Ware (https://n2t.net/ark:/28722/k22b9fz8w).
55 Eastern Sigillata (https://n2t.net/ark:/28722/k2xk8rb2f), ESB (https://n2t.net/ark:/28722/k2st81h9j), and ESA (https://n2t.net/ark:/28722/k2p279q7p).
56 Pettegrew 2007, 775–777; 2011, 560; Slane 2000, 307–310; 2003, 330–331; Peppers 1993, 117–121. From the second half of the first century, eastern sigillatas replaced Italian sigillata as the dominant class at Corinth.
57 For what follows, see Pettegrew 2007, 776 n.97; Pettegrew 2015, 295–296; Pettegrew 2016, 150–151. Cf. Slane 1990, pp. 47–54; 2000; 2003, pp. 330–331. Eastern Sigillata B is especially common at Corinth in second to early third century deposits.

58 Arretine Ware (https://n2t.net/ark:/28722/k22b9fz8w), Eastern Sigillata A (https://n2t.net/ark:/28722/k2p279q7p).

59 Zone 26 near Yiriza (https://n2t.net/ark:/28722/k2tt52d89), West of Isthmia (https://n2t.net/ark:/28722/k2br9733d), Z49 (https://n2t.net/ark:/28722/k2765x257), near Rachi Boska (https://n2t.net/ark:/28722/k2q24bm5z), Z40 (https://n2t.net/ark:/28722/k2tx3rt3t), Z42 (https://n2t.net/ark:/28722/k2fr09s27), and Z43 (https://n2t.net/ark:/28722/k29z9kz8x).

60 Kajava 2002; Gebhard 1993b, 79; Gebhard, Hemans, and Hayes 1998, 408–16; Gebhard 2005, 185; and Frey and Gregory 2016.

61 ESB (https://n2t.net/ark:/28722/k2st81h9j), ESB1 (https://n2t.net/ark:/28722/k2j96kx3j), and ESB2 (https://n2t.net/ark:/28722/k2dj5w377).

62 ESA (https://n2t.net/ark:/28722/k2p279q7p), Yiriza South (https://n2t.net/ark:/28722/k28s5593g).

63 Z37 (https://n2t.net/ark:/28722/k22f85c2q), Zone of Ayia Paraskevi (https://n2t.net/ark:/28722/k25434w2z).

64 ESB2 (https://n2t.net/ark:/28722/k2dj5w377), Pettegrew 2016, chapter 7.

65 Amphoras (https://n2t.net/ark:/28722/k2k93mt3s), table wares (https://n2t.net/ark:/28722/k2fj2x08z), kitchen wares (https://n2t.net/ark:/28722/k21c2f274), lamps (https://n2t.net/ark:/28722/k2wm1qf37). Pettegrew 2015.

66 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

67 Casana 2004; de Giorgi 2016.

68 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q),Aegean Red Amphora handles (https://n2t.net/ark:/28722/k2rv10n0z), body sherds (https://n2t.net/ark:/28722/k2n308t51), imported table ware (https://n2t.net/ark:/28722/k27p9f12w), and kitchen ware fragments (https://n2t.net/ark:/28722/k23x8q67n).

69 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

70 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

71 29 of the 50 zones (https://n2t.net/ark:/28722/k2h99k108).

72 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

73 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

74 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), All broad areas we examined (https://n2t.net/ark:/28722/k2h99k108).

75 Z50 (https://n2t.net/ark:/28722/k24464024), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Aegean Red 1 Amphora handle (https://n2t.net/ark:/28722/k2rv10n0z).

76 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), Z46 (https://n2t.net/ark:/28722/k20c5d58c), LOCA 9035 (https://n2t.net/ark:/28722/k2vm4pj4g), Aegean Red 1 Amphora handle (https://n2t.net/ark:/28722/k2rv10n0z).

77 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

78 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

79 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

80 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), Zones 1–24 (https://n2t.net/ark:/28722/k2qv3zq97), Z20 (https://n2t.net/ark:/28722/k2m337x3t).

81 Zone 3 (https://n2t.net/ark:/28722/k2gb2j39g), LOCA 9228 (https://n2t.net/ark:/28722/k24t71q32), Aegean Red amphora sherds (https://n2t.net/ark:/28722/k2cg04t46). For this site, named after a menacing dog with a piggish face, see Pettegrew 2008, 257–258; 2015, 303–304.

82 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Z5–Z8 (https://n2t.net/ark:/28722/k2bp0hq07), Aegean Red 1 Amphora handle (https://n2t.net/ark:/28722/k2rv10n0z), Çandarli Ware Form 3 (https://n2t.net/ark:/28722/k2vd78r7q), and Çandarli Ware Form 5 (https://n2t.net/ark:/28722/k2qr58b5t).

83 Rachi Boska and Perdikaria (https://n2t.net/ark:/28722/k26w9sw5f), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

84 LOCA 9221 (https://n2t.net/ark:/28722/k2349333c), Zone 12 (https://n2t.net/ark:/28722/k2zc8cf9v), Aegean Red 2 Amphora (https://n2t.net/ark:/28722/k2sn0mr13), and ARS Form 50 (https://n2t.net/ark:/28722/k2m04jj2g).

85 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), Z15 (https://n2t.net/ark:/28722/k2tm7nn47), Z16 (https://n2t.net/ark:/28722/k2pv6xt8h) Aegean Red amphora sherds (https://n2t.net/ark:/28722/k2cg04t46), Aegean Red 2 Amphora (https://n2t.net/ark:/28722/k2sn0mr13), and ARS Form 50 (https://n2t.net/ark:/28722/k2m04jj2g).

86 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), Ayios Kosmas and Isthmia (https://n2t.net/ark:/28722/k2k367130).

87 West Foundation (https://n2t.net/ark:/28722/k2ff46m44), Z28 (https://n2t.net/ark:/28722/k29p3gs9w), Z29 (https://n2t.net/ark:/28722/k25x2s06n), Z31 (https://n2t.net/ark:/28722/k22522626), Vertical Rim Cooking Pot rims (https://n2t.net/ark:/28722/k2xd1bj6q), and Aegean Red 2 Amphora (https://n2t.net/ark:/28722/k2sn0mr13).

88 Southwest of Isthmia (https://n2t.net/ark:/28722/k2nv9wx69), Z34 (https://n2t.net/ark:/28722/k2j67wh6p), Z35 (https://n2t.net/ark:/28722/k2df75q3d), Z36 (https://n2t.net/ark:/28722/k28p6fx0r), Z37 (https://n2t.net/ark:/28722/k24x5r37w), Aegean Red 1 (https://n2t.net/ark:/28722/k2155192z), and Aegean Red 2 Amphora sherds (https://n2t.net/ark:/28722/k2sn0mr13).

89 Z27 (https://n2t.net/ark:/28722/k2wd49n6g), Z40 (https://n2t.net/ark:/28722/k2rn3kv2b), and Z38 (https://n2t.net/ark:/28722/k2n01kf17).

90 Z41 (https://n2t.net/ark:/28722/k2h70vm60).

91 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), scatter across the survey region (https://n2t.net/ark:/28722/k2h99k108), *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

92 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

93 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

94 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

95 For these calculations, I used ArcGIS Near Analysis tool to measure distances between polygons from different layers and then averaged those distances.
96 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
97 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
98 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
99 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
100 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
101 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), Aegean Red Amphora (https://n2t.net/ark:/28722/k2cg04t46), fine wares (https://n2t.net/ark:/28722/k27p9f12w), and cooking pot sherds (https://n2t.net/ark:/28722/k23x8q67n).
102 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
103 Çandarli ware body sherds (https://n2t.net/ark:/28722/k20580d2q), Çandarli Form 3 rim (https://n2t.net/ark:/28722/k2vd78r7q), Çandarli Form 5 base (https://n2t.net/ark:/28722/k2qr58b5t), African Red Slip Form 50 rims (https://n2t.net/ark:/28722/k2m04jj2g), Aegean Red Amphoras (Niederbieber 77 [https://n2t.net/ark:/28722/k2cg04t46]), and *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
104 Çandarli Ware body sherds (https://n2t.net/ark:/28722/k20580d2q), ESB2 (https://n2t.net/ark:/28722/k2dj5w377), *Early Roman* (https://n2t.net/ark:/28722/k2v415907).
105 Çandarli Form 5 base (https://n2t.net/ark:/28722/k2qr58b5t), African Red Slip Form 50 rims (https://n2t.net/ark:/28722/k2m04jj2g).
106 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
107 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
108 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
109 Pettegrew 2016, 206–233.
110 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).
111 Assemblage of objects (https://n2t.net/ark:/28722/k2g73tq96), *Archaic–Classical* (https://n2t.net/ark:/28722/k26q2ct56), *Classical–Hellenistic* (https://n2t.net/ark:/28722/k2v98k29s).
112 Units with *Late Roman* artifacts (https://n2t.net/ark:/28722/k27w6ts65).
113 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).
114 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), all 50 standard zones (https://n2t.net/ark:/28722/k27w6ts65).
115 *Archaic–Classical* (https://n2t.net/ark:/28722/k26q2ct56), *Classical–Hellenistic* (https://n2t.net/ark:/28722/k2v98k29s), and *Modern* (https://n2t.net/ark:/28722/k2rb7gc7n).
116 Most surveyed areas (https://n2t.net/ark:/28722/k27w6ts65).
117 Substantial carpet of material (https://n2t.net/ark:/28722/k2bg33x5f).

118 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), *Classical–Hellenistic* (https://n2t.net/ark:/28722/k2v98k29s).

119 Z45 (https://n2t.net/ark:/28722/k26q2d407), Z46 (https://n2t.net/ark:/28722/k2ft90w1g), Z47 (https://n2t.net/ark:/28722/k2zs35q1b), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

120 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

121 Z38 (https://n2t.net/ark:/28722/k2z60zp0x), Z42 (https://n2t.net/ark:/28722/k2th8z78v), Z34 (https://n2t.net/ark:/28722/k2pr87f5k), Z35 (https://n2t.net/ark:/28722/k2k07hn27), Z37 (https://n2t.net/ark:/28722/k2f76st9z), Z30 (https://n2t.net/ark:/28722/k29g63144), Z31 (https://n2t.net/ark:/28722/k23v00t2w), Z8 (https://n2t.net/ark:/28722/k2tb1jg6p), LOCA 9002 (https://n2t.net/ark:/28722/k2ns16j9t) Z12 (https://n2t.net/ark:/28722/k2223bs8c), LOCA 9221 (https://n2t.net/ark:/28722/k25q5c700), and Z18 (https://n2t.net/ark:/28722/k26m3pq7w).

122 Zones 28–37 (https://n2t.net/ark:/28722/k2j10gr50), Z12–Z18 (https://n2t.net/ark:/28722/k2d79rz0t), slopes of Oneion (https://n2t.net/ark:/28722/k28g9245c) LOCA 9228 (https://n2t.net/ark:/28722/k24t71q32).

123 Yiriza South (https://n2t.net/ark:/28722/k21269w9m), the district of Kromna (https://n2t.net/ark:/28722/k2w95m854), and Boulberi (https://n2t.net/ark:/28722/k2rj4wg2g).

124 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), Z2–Z3 (https://n2t.net/ark:/28722/k2h13fv3s), Z14–Z15 (https://n2t.net/ark:/28722/k2c82r19f), Z28–Z29 (https://n2t.net/ark:/28722/k27m0qm74), Z31 (https://n2t.net/ark:/28722/k23v00t2w), Z34–Z37 (https://n2t.net/ark:/28722/k2029910w), and Z38 (https://n2t.net/ark:/28722/k2qj7vk1r).

125 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), surrounding Isthmia (https://n2t.net/ark:/28722/k2j10gr50), Panorama South (https://n2t.net/ark:/28722/k2v98kc6c), Ayia Paraskevi (https://n2t.net/ark:/28722/k2z60zp0x), Marougka (https://n2t.net/ark:/28722/k2ks74r6w), Rachi Boska (https://n2t.net/ark:/28722/k2ms45n83), and the Perdikaria valley (https://n2t.net/ark:/28722/k2g16dz22).

126 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

127 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), Kromna (https://n2t.net/ark:/28722/k2w95m854), Boulberi (https://n2t.net/ark:/28722/k2rj4wg2g), and Kesimia (https://n2t.net/ark:/28722/k2bc4dj1n).

128 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

129 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), Z18 (https://n2t.net/ark:/28722/k26m3pq7w), Z22 (https://n2t.net/ark:/28722/k22v2zx47), Z12 (https://n2t.net/ark:/28722/k2jt03v5q), Z13 (https://n2t.net/ark:/28722/k2z32891x), and Z38 (https://n2t.net/ark:/28722/k2qj7vk1r).

130 Z37 (https://n2t.net/ark:/28722/k2f76st9z).

131 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

132 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).
133 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).
134 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q). This near analysis excludes outliers above 1,000 meters to avoid the distorting effects of isolated *Late Roman* units in the southern Corinthia (Kato Vayia and Vigla) that have no near *Early Roman* neighbor. Near analysis does not work in comparing *Late Roman* with *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q) because Middle Roman is so under-represented in the landscape.
135 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), Z8 (https://n2t.net/ark:/28722/k2tb1jg6p), Z10 (https://n2t.net/ark:/28722/k2pk0tp12), Z12 (https://n2t.net/ark:/28722/k2jt03v5q), Z17 (https://n2t.net/ark:/28722/k2f483f61), Z22 (https://n2t.net/ark:/28722/k29c7cn2w), Z26 (https://n2t.net/ark:/28722/k25m6nt84), Z31 (https://n2t.net/ark:/28722/k23v00t2w), Z34 (https://n2t.net/ark:/28722/k2pr87f5k), Z37 (https://n2t.net/ark:/28722/k2f76st9z), Z38 (https://n2t.net/ark:/28722/k2z60zp0x), Z40 (https://n2t.net/ark:/28722/k2x92n53d), and Z42 (https://n2t.net/ark:/28722/k2th8z78v).
136 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), 2,200 objects (https://n2t.net/ark:/28722/k21v5z14d) *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).
137 Table wares (https://n2t.net/ark:/28722/k2nk3sr97), amphoras and utilitarian vessels (https://n2t.net/ark:/28722/k2x357c8m), kitchen wares (https://n2t.net/ark:/28722/k2sb4hk30), lamps (https://n2t.net/ark:/28722/k2d512j3w), coins (https://n2t.net/ark:/28722/k28d0br1q), terracotta weights (https://n2t.net/ark:/28722/k24m9mx8w), and ceramic beehive fragments (https://n2t.net/ark:/28722/k20v8x43p).
138 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).
139 Pettegrew 2007.
140 Phocaean Ware (https://n2t.net/ark:/28722/k2w386g8c), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).
141 Gouged Ware (https://n2t.net/ark:/28722/k2rb7gp47), Egypt (https://n2t.net/ark:/28722/k2mp5g82b) and Cyprus (https://n2t.net/ark:/28722/k2gx4rf8k).
142 African Red Slip table ware (https://n2t.net/ark:/28722/k2c541n5m), African Red Slip Form 99 (https://n2t.net/ark:/28722/k27d39v3f), African Red Slip Forms 104–106 (https://n2t.net/ark:/28722/k23n2m18m). A broader class of African Red Slip pottery could not be identified precisely to types but could date anytime between the second and seventh centuries. All African Red Slip together, including *Roman*, *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q) , and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q) types,

numbers only 1.5% of the entire collection of objects of *Early Roman*, *Middle Roman*, *Late Roman*, or *Roman* date. The Roman assemblage is indeed almost wholly eastern.

143 Late Roman 2 Amphoras (https://n2t.net/ark:/28722/k2zw1wd2r), Palestinian Amphora types (https://n2t.net/ark:/28722/k2v415k76), Late Roman 1 Amphoras (https://n2t.net/ark:/28722/k2qf95567).

144 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), ARS Form 99 (https://n2t.net/ark:/28722/k27d39v3f), ARS Forms 104–106 (https://n2t.net/ark:/28722/k23n2m18m), Egyptian Red Slip (https://n2t.net/ark:/28722/k2mp5g82b), Cypriot Red Slip (https://n2t.net/ark:/28722/k2gx4rf8k), and Phocaean Ware Form 3 (https://n2t.net/ark:/28722/k2kp8fc23), Phocaean Ware Form 4 (https://n2t.net/ark:/28722/k2fx7qj9t), Phocaean Ware Form 9 (https://n2t.net/ark:/28722/k2b570r6v), Phocaean Ware Form 10 (https://n2t.net/ark:/28722/k26d68z17), Late Roman 1 (https://n2t.net/ark:/28722/k2qf95567), Late Roman 2 (https://n2t.net/ark:/28722/k2zw1wd2r), and Palestinian (https://n2t.net/ark:/28722/k2v415k76).

145 Combed Ware (https://n2t.net/ark:/28722/k22n5k47w), Spirally Grooved Ware (https://n2t.net/ark:/28722/k2xw4vh2h). For Corinth, see Slane 2008, 478; Slane and Sanders 2005. For Isthmia, see Rothaus 2000, 76 note 40.

146 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), a dozen objects (https://n2t.net/ark:/28722/k2t72v30x). See Cloke 2016 and Caraher et al. 2020, with references.

147 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q), dozen medium coarse sherds (https://n2t.net/ark:/28722/k2pg24852).

148 Amphora lids (https://n2t.net/ark:/28722/k2jq1dg3w), terracotta circular weights (https://n2t.net/ark:/28722/k2dz0pp07), one carved out of a Corinthian tile (0531000005, https://n2t.net/ark:/28722/k2wh3091h), another with a center hole (1151000004, https://n2t.net/ark:/28722/k2sj1wn79).

149 *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

150 Caraher and Pettegrew 2016.

151 Cf. Pettegrew 2015 for maps of *Late Roman* hotspots based on the diversity of material present.

152 *Roman* (https://n2t.net/ark:/28722/k23r1944z), *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), and *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q).

153 Pettegrew 2007.

154 Comparative data based on the following: Northern Keos Survey: Sutton et al. 1991; Cherry, Davis, and Mantzourani 1991. Oropos Survey Project: Cosmopoulos 2001. Laconia Survey: Lawson 1996; Shipley 2002. Methana Survey: Gill, Mee, and Taylor 1997; Bowden and Gill 1997a, 1997b.

155 The area almost certainly had a Roman villa and may have fallen along an upland road to Isthmia: Pettegrew 2015, p. 308; 2016, p. 204, 216, 221.

156 *Early Roman* (https://n2t.net/ark:/28722/k2v415907).

157 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

158 *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q).

159 *Early Roman* (https://n2t.net/ark:/28722/k2v415907), *Middle Roman* (https://n2t.net/ark:/28722/k2kk9qp6q), *Late Roman* (https://n2t.net/ark:/28722/k27h20x6q). The top twenty-five units of any of the narrow periods (*Early Roman*, *Middle Roman*, and *Late Roman*) overlap at most 16% of the time (i.e., 4/25).

160 The densest *Early Roman* units (n=25) overlap with the densest decile of survey units (n=135) in only 10 cases (40%); *Middle Roman* overlap in only 4 units (16%); and *Late Roman* in 56% of units.

Chapter 14
Corinthian Countrysides

The chapters of this study have presented the history, datasets, and analysis of the Eastern Korinthia Archaeological Survey carried out in the region east of Ancient Corinth between 1997 and 2003. That project took as its primary focus the territory of the Isthmus between Corinth and the Corinth Canal, but also examined important coastal districts of the mountainous southeastern Corinthia. The total survey area encompassed about 4 km^2 through intensive distributional methods and 20 km2 through other kinds of reconnaissance and extensive methods, while environmental and geospatial survey encompassed an even broader area (Ch. 3). Despite the limited area covered through intensive survey methods, EKAS generated a substantial record of artifacts, features, and sites in the region. That record—newly published online—reflects the project's measurements of a rich history of habitation of the countryside between the Neolithic period and Modern times and forms the foundation for archaeological work and reuse today.

My goal in this book has been to establish a critical edition of the project's primary datasets published at Open Context, while also presenting a case study of how data-driven distributional surveys in artifact-rich regions of Greece create new ways of aggregating, layering, understanding, and engaging with landscapes. To that end, I devoted the first part of the work to laying out the project's background (Ch. 2), history (Ch. 3), outcomes (Ch. 4), methods (Ch. 5), and category of sites (LOCAs: Ch. 6); the second part to the character and reuse of published datasets (Ch. 7 and Ch. 8, with Appendices I and II); and the third part to a systematic analysis of artifact counts (Ch. 9), chronological variability (Ch. 11), and distributions of artifacts, sites, and features (Ch. 10, Ch. 12, and Ch. 13). These chapters situated datasets in terms of their specific contexts, conditions, and contingencies—the range of processes both historical and archaeological, past and present—that shaped their character and potential for analysis. In describing this source and laying out pathways for critical analysis, I have worked to establish frameworks that will encourage others to reuse the data and create new knowledge about Corinthian countrysides.

In this concluding chapter, I want to develop this discussion by reflecting on some of the ways that analysts can think about, with, and from datasets to advance broader arguments about regional history. The chapter proceeds along three lines. The first part (Section 14.1) considers how we ought to think *about* survey archaeology and digitally published EKAS datasets given what we know about the archaeological record in the Corinthia. The second part (14.2) explores how analysts might think *with* data, distributions, and the dominant patterns of evidence to advance interpretations of Corinthian countrysides. Part three (14.3) describes how archaeologists ought to think *beyond* limited survey datasets to generate more holistic interpretations of regional history.

14.1. Looking Up: Thinking *about* Survey Data

In 2004, a year after the Eastern Korinthia Archaeological Survey concluded, the archaeologist Albert Ammerman reflected on the "loss of innocence" that had taken place in survey archaeology over the previous generation.[1] Until 1980, he noted, surveyors had regularly assumed a singular correspondence between "the spatial distributions of the things that we recover in the field and the spatial distributions generated by human behavior in earlier times." In fact, Ammerman concluded, "we now know that things are more complex." Ammerman had in mind the impact of changes in land use and visibility conditions on detection of surface scatters in the Italian region of Calabria, but his comments may be applied retroactively to the general souring of optimism about the potential of surface scatters to reconstruct past populations and buildings at the turn of the new millennium. Simple empirical approaches to converting pots to people had largely failed: what you see in surface scatters, it turns out, is *not* what you get.

The last several decades have further deepened awareness of the processes that separate past behaviors and buildings from the tattered and smeared forms that archaeologists imperfectly document in fields, groves, valleys, and mountains (cf. Section 9.4). We now have a better sense that this epistemic distance begins long before cultural debris ever enters the ground—it begins in the daily decisions of individuals, families, and groups to move, build, tear down, sell, take away, expand, destroy, and reconstruct their living conditions. The gap grows as humans, animals, insects, worms, soils, water, and wind transform, deplete, and erode material culture over the centuries. By the time archaeologists arrive to record a landscape, very little of what once was remains, and whatever has been brought to the ground surface is imperfectly measured through the chosen tools of sampling, spacing, counting, collecting, and analysis. It is sobering but true that we never really get close to systemic assemblages of past societies,[2] let alone human behaviors or the layered meanings of landscapes, through the blunt tools of survey archaeology—no matter how much calibration or fine-tuning of method we throw at the problem.

Data-rich distributional approaches are valuable precisely because they deepen both our understanding of the fragmented and palimpsest landscape, and the ways we need to think critically about our own incomplete measures of it. In this sense, I have likened the study and presentation of survey data today to publishing a critical edition of a highly fragmented text, or perhaps better, a series of fragmented texts that concern some narrow genre of past life (cf. Preface, Ch. 1, Section 3.3). The philologist works to reconstruct, translate, and explain the past and present character, contexts, conditions, and contingencies that have shaped the extant tattered bits of the works, but knows that fragmentation is too great to fully reconstruct the whole. Knowing more about those epistemic gaps is vital in establishing the sources' reliability, their representativeness of a wider culture, and the reuse value for others. Survey archaeologists likewise may play an important role in reconstructing, contextualizing, and translating fragmentary texts when they prepare various kinds of survey data for interpretation and reuse.

Critical thinking about the texts of survey data is especially important when we move to extrapolate from samples (cf. Sections 11.1, 12.1). Our discussion of the EKAS data of counts and chronotypes has underscored how decisions and archaeological practices acted as a series of filters that widened the gap between our measure of the landscape and the underlying target population of artifacts. The intensity of method, limitation of resources, and complexity of landscape meant that we only intensively examined about 1% of the eastern Corinthia through distributional methods (Section 3.2). Our selected methods and limited surface visibility reduced our potential counts of objects to well under 3% of the quantity of objects that were probably present in the plow zone (Section 9.1). We picked up only 37% of the nearly 150,000 objects we counted through all methods of survey (Sections 5.2.2, 11.1), and we removed from the field for careful study only a small fraction (7%) of those (Section 3.2). The vast majority of all the objects that analysts read (80%) were dated to periods greater than 600 years (Section 11.1). Putting all this together, we can say that our sample of objects that were read and identified represented less than 1% of objects in the plow zone of the areas we examined, which in turn comprised only 1% of the entire survey area; only 5% of those could be dated to two centuries or less. Our collection of highly datable artifacts of the eastern Corinthia—the basis for reconstructing historical periods (Ch. 11, Ch. 12, Ch. 13)—never comprised more than a tiny fraction of a tiny fraction of a tiny fraction of the total quantity of artifacts actually present in the landscape.

Archaeologists obviously cannot raise the dead simply by devising more thorough fieldwork strategies—total collection or total coverage, for example—or analysis (cf. Ch. 9, Ch. 11, and Ch. 12). Calibration may help in adjusting artifact density values (Section 9.3, Ch. 10), but will never even come close to bridging the epistemic divide between surface scatters visible today and the systemic assemblages of a past population, let alone bring us to other aspects of past life that are not preserved in durable ceramic objects. It is easier and more honest to practice a kind of critical thinking that accepts the sample as it is—a distant approximation of the buried landscape, a dim reflection through the looking glass—and respects the limits of evidence.

Accepting the gaps between sample and original populations can ultimately aid our interpretations of the meanings of presence, absence, and abundance of objects of certain dates or types in the landscape. Most obviously, the archaeological absence of evidence, whether in survey or excavation contexts, is never evidence for absence.[3] Absence, in fact, is not particularly significant when the documentation of surface scatters (the measure) is so incomplete (cf. Sections 9.4, 11.1, 12.1, and 14.1). The presence or abundance of objects of certain periods point as much to the visibility of periods, the dominant materials, the changing connectivity, and the quantity of recognizable (often imported) wares as they do to past populations (Ch. 11). This applies also, of course, to the remains of buildings and features in the landscape (Ch. 6) that survive primarily because of their recent construction, monumental character, or the ongoing value they have for a society. Collectively, materially rich landscapes offer a relative index of the intensity, duration, and investments of the dominant practices of past "habitation" (Section 9.4, Ch. 10)—construed in the broadest terms as the processes associated with living in a place.[4] It requires a greater interpretive commitment to translate the layered residues of long-term depositional processes into socioeconomic human categories of towns, farms, villas, storage houses, and the like.[5] It is far easier and better to begin an analysis of artifact-rich environments by describing and disentangling their layers and recognizing the dominant processes and periods that produced them (Ch. 10, Ch. 12, Ch. 13).

Scholars may counter that farms, villas, and settlements usually produce discreet high-density clusters of material that archaeologists identify in survey,[6] but in our experience, the artifact-rich environments of the eastern Corinthia, especially the Isthmus, made it difficult to identify discrete cores in complex overlays of smeared continuous carpets. Our own efforts to define anomalous concentrations in the process of fieldwork (Ch. 6) frequently missed the densest concentrations of overall artifact density (Section 10.3), and the densest areas of particular periods (Ch. 12), and sometimes showcased our mistaken impressions of what initially appeared anomalous (Section 6.1). Our catalogue of Localized Cultural Anomalies had value for communication and collection but were not diachronically representative of the significant places surveyed in the region. Even the artifacts and areas with the greatest overall artifact densities, however defined or calibrated (Ch. 10), often missed lower density scatters of particular periods (Section 12.5).[7]

Although we often encountered abundant artifact scatters in the survey, we also often noted cases of building remains and features in which artifacts were absent or scarce, even at monumental fortifications that must have supported episodic occupation (Section 4.2.4). Our best documented example comes from a longitudinal study (2001–2018) of 17 nineteenth and twentieth century longhouses in the upland valley of Lakka Skoutara, undergoing complex but ordinary processes of use, reuse, and abandonment (Section 4.2.5).[8] Revisiting the valley over a period of nearly two decades gave us a fascinating window into a landscape dynamism that remade buildings and assemblages in unexpected ways. We watched standing houses representing multi-generational occupation slowly dissolve before our eyes. We observed country homes converted to animal storage pins, shabby storehouses refurbished into beautiful country abodes, and house foundations disappear entirely. Some houses had over 2,000 roof tiles, others only fragments; in one case, we noted that the tiles covering a roof were stripped and carted elsewhere sometime between our visits. Many of the building foundations showed no evidence of the range of domestic equipment and assemblages that once existed; in one standing building, the character and placement of assemblages changed from visit to visit. In only a third of the houses did we find substantial artifact clusters inside or outside the building.

Concluding our study of the valley and houses of Lakka Skoutara, we underscored the constant dynamic remaking of the settlement of the valley.[9] "The houses and their physical assemblages today," we concluded, "reflect only a small part of the complicated formation processes shaped by human factors such as kinship practices, inheritance, interpersonal conflict, mobility, transportation, land use, and agricultural activities. Human behaviors and formation processes can quickly reshuffle the physical artifacts of settlements within the short order of a decade or even a few years, a fact that complicates our definitions of terms such as *habitation*, *abandonment*, and even *village*."

Indeed, our recognition of this dynamic complexity of assemblages, distributions, and processes in the landscape was what gave me pause to interpret scatters as the simple proxies for different classes of past habitation and imagine different ways to analyze artifact scatters. Some scholars, of course, will find the practice of reading patterns as an index of process rather than place unsatisfying and non-committal.[10] I understand that critique, but consider a shift to process in the first order of analysis an appropriate response to the loss of innocence, the dynamism of landscapes, and the epistemic gaps that we now know separate present from past. This emphasis on process over place accepts that most scatters—whether high density or low density—initially form through behaviors of habitation broadly construed, but recognizes that the intricacies of the behaviors, functions, buildings, and phases make particular identifications difficult and problematic. Pottery and tile do not readily translate to places, people, and populations: the analyst must make that argument and interpretation case by case with all available tools.

Despite the very real gaps, our samples, like the historian's fragmented texts, have value in shedding oblique light on processes of past habitation as long as we recognize that evidence as the imperfectly preserved products of dominant patterns. Sampling multiple parts of a landscape, however small, may illuminate the distinct character and chronology of habitation for an entire region, especially when set alongside that of other regions. A more integrative approach to sensing the landscape, moreover, through excavation, remote sensing, geoarchaeology, and textual analysis (among others) can correct the limited impression we get from artifacts and features alone. While learning to think *about* survey data and artifact scatters is a foundational skill, we should also think *with* the dominant scatters of artifacts and features and other evidence to make arguments about the past.

14.2. Looking Back: Thinking *with* Survey Data

The proposal for a survey of the eastern Corinthia in the fall of 1998 outlined a research program oriented around addressing questions at different scales (Section 3.1). Some were broadly framed to consider the eastern Corinthia's place in a network and the diachronic and intra-regional regional patterns of habitation and agriculture that supported it.[11] Others focused more narrowly on the development of facets of the transportation systems, the relationship of town and country, and the histories and contexts of known archaeological sites such as the well-excavated Panhellenic sanctuary of Poseidon at Isthmia. Over the last two decades, scholars have worked through some of these questions as part of a process of thinking *with* distributions, data, and other forms of evidence—that is, by writing the histories of the territory from its dominant patterns (Appendix I). Others remain unanswered, inviting exploration and tinkering with survey data in conjunction with a wider array of evidence (Section 14.3).

The project's most important big-picture question at the start of the survey concerned the nature of Corinthian connectivity (Section 3.1). "The Korinthia," stated the opening sentence of the project proposal, "was one of the most important hubs of trade and transport in the ancient Greek world, a source of raw materials and manufactured goods exported throughout the Mediterranean, and a rich agricultural region" (p. 1).[12] The project's primary research would concern "the issue of how the people of this region interacted with their immediate surroundings, with their neighbors in Greece, and with other parts of the broader world." While research questions would vary according to different periods (p. 3), "the overarching question is the relationship between the eastern Korinthia, its main urban center, and the broader Mediterranean world." Thus, the old nagging question of Corinth's situation—occupying the narrow neck of land at the gateway to the Peloponnese—made geographic passage, connectivity, trade, and interaction the driving force of the survey. As we became accustomed to ask, sometimes in jest, while conducting survey, "which way was the eastern Corinthia *facing*?"

That question was an obvious one to raise in light of a long-running way of understanding Corinth through its connecting geography (Ch. 2).[13] The Greek historians, Herodotus and Thucydides, after all, had made commerce and passage central to their visions of Corinthian wealth, power, and population 2,500 years ago, and later historians, poets, philosophers, and moralists happily applied that vision indiscriminately to the city at different points of its later history (Section 2.1). Corinth was essentially wealthy, connected, commercial, powerful, transient, wayward, unsettled, and immoral, they said, because of its maritime position and orientation. This ancient maritime myth of Corinth naturally made its way into the modern scholarship of the region. Classical philologists, for example, homed in on the region's material infrastructure that made Corinth truly distinct from other ancient poleis: fortification walls to control passage, a diolkos road for portaging Mediterranean cargoes, prominent harbors that facilitated trade (Lechaion and Kenchreai), and the trading depot at Isthmia (Section 2.1). Early modern Bible commentators depicted the wicked city of wanderlust residents who formed the mission field of St. Paul's visit in the mid-first century. Even in the decade or two before EKAS, scholars often dismissed the Corinthian countryside's agricultural potential out of hand, preferring to explain its economy in terms of its facilities for traffic and service to the throngs of travelers.[14] The maritime vision was so baked into the discourse surrounding Corinth that studies of the territory's agricultural resources still required justification in the 1980s.[15]

The question of settlement patterns proved essential because it was tied directly to these larger matters of interaction and exchange. Before the 1980s, most scholars imagined the Corinthia primarily in terms of its harbors, monumental features, and settlements that supported the region's maritime structure (Sections 2.2 and 2.3). Wiseman's seminal study of the territory through reconnaissance survey and synthesis of available evidence, for example, cast a bird's eye view on major roads, routes of passage, and sites from prehistory through Roman times, but one that was limited to dots on the map separated by vast unpopulated intervals of travel (Section 2.3). Corinthian scholars often thought of the historical settlement of the eastern Corinthia like early modern settlement patterns evident in nineteenth century maps, publications, and old photographs: seemingly devoid of rural settlement except for a few scattered towns and villages. Apart from Carl Blegen's early exemplary treatment of the system of prehistoric settlements on the Isthmus and central corridor (Section 2.2), few archaeologists had thought much about the larger network of habitation and land use in the space beyond Corinth (cf. Sections 2.3 and 2.4). For all practical purposes, the Corinthia was a largely empty canvas,[16] peripheral to the historical and religious study of the region except as a conduit of travel, trade, and passage.[17]

The survey of the eastern Corinthia between 1998 and 2003 complicated this vision by encouraging different ways of thinking about the relationship of settlement, transportation systems, agriculture, and connectivity. In one respect, thinking with survey data led scholars to reconsider the very structures and myths of the Corinthian image of a highly connected landscape. Several studies of the results of survey, alongside other kinds of evidence (epigraphical, excavation, and literary texts), produced more nuanced views of the histories of Corinthian commercial and military structures such as the diolkos road, Kenchreai and Lechaion, Isthmia, and Hexamilion.[18] The Corinthian landscape was highly connected but not quite in the essentialist and deterministic way that scholars had once imagined. Connectivity, rather, was contingent and variegated, the character and volume of its interactions contingent upon the region's place in a changing Mediterranean world. Corinth and the Corinthia, in this revised view, were distinct not in terms of the uniqueness of their economies or maritime character per se,[19] but in the intensity and sustaining of connection.[20]

In another respect, survey of the eastern Corinthia identified numerous traces of agriculture and habitation in the countryside for all periods of the Corinthian past, overturning whatever views scholars had of an empty region. The Corinthia, in fact, produced one of the most abundant and highest-density carpets of objects, features, and sites in all of Greece (Ch. 10). The average overall density of artifacts in the region approached the values typically used to define archaeological sites in landscape archaeology projects in Greece (Section 9.1). Certain periods, such as Roman, produced assemblages many times greater than was common for Greek regional surveys (Section 13.4). While the abundance and ubiquity of material might, in part, reflect where we spent the most time looking—the denser zones of the busy Isthmus—it also marked an index of the intensity of importation, supply, and occupation at a major gateway to the Peloponnese. The open location at the heartland of Greece gave the region an exceptionally long and continuous history of trade, occupation, and investment as evident in the debris of high-investment building materials and agricultural equipment such as tile, pithoi, cut stone, millstone, and querns (Section 10.3). The eastern Corinthia was never an empty landscape, but, rather, an "archaeological continuum" of artifacts, features, and field divisions reflecting its long history.[21]

Yet, this continuum looked different over time and space according to a changing logic of settlement (Ch. 12 and Ch. 13). In one respect, survey data suggests a high degree of continuity and reoccupation of the land over the long-term, despite moments of transformation, disruption, and turmoil in the region[22]—including, in historic times, the Persian invasion, Roman sack of Corinth, Neronian canal project, Ottoman conquest, Greek War of Revolution, and German occupation. The later establishment of central places such as Isthmia; the construction of monumental landscape features such as the trans-Isthmus fortification wall, Examilia Quarries, and canals; and the investment in particular buildings and places contributed to different forms of reuse over the long term. Yet, reuse could transform the function and aspect of Corinthian sites—as we know intimately from the dramatic conversions at the excavated site of Isthmia[23]—while continuity, in any case, looked different across space and time (Ch. 12). Some southern districts, such as the valley of Lakka Skoutara near Sophiko or the coastal ridge of Vigla near Almyri, combined fertile valley catchments and arable land with strategic positions that gave them a kind of staying, attractive power: settlement and land use occurred fairly continuously, albeit at changing intensities, from Neolithic times to the twentieth century. Other more marginal zones of the southeast, such as the headland of Kato Vayia, the ridge of Ano Vayia, and the high passes on Mount Oneion, were inhabited less continuously, but repeatedly and episodically during periods that prioritized defense and fortification (see below). The districts of the Isthmus were densely occupied in all periods, because of the natural advantages of arable land, water sources, major roads, harbors, and markets, on the one hand, and the historically specific landscape investments on the other. Yet, the continuousness and discreteness of evidence for settlement on the Isthmus look quite different over time as each period had its own distinct logic of habitation (Ch. 12).

Consider the complex relationship of town and territory. Questions concerning the nature of that relationship were central to the original framing of the project, but archaeologists have reimagined that framework in thinking through the results of survey. The urban center clearly exerted a strong influence on its territory in the Geometric–Hellenistic and Roman periods, yet the inhabitants of surrounding towns, villages, and harbor (e.g., Kenchreai, Lechaion, Kromna, Solygeia, Schoinous, and Krommyon) at times developed their own sense of community identities and independence.[24] In late antiquity, the emergence of extra-urban settlements such as the military garrison at Isthmia in the fifth to seventh centuries AD necessarily created new nodes within a territory that exerted their own influence on farms and supply systems.[25] In modern times, Corinthian settlements on the Isthmus—New Isthmia, Washingtonia, or Examilia, for example—could forge distinct characters, identities, and histories as Corinth itself changed.[26] Thinking through the implications of a well-inhabited landscape complete with different classes and sizes of settlements has encouraged reimagining center and periphery.

I will give a few concrete examples. First, survey made clear that the southeastern region investigated by EKAS had at times its own connective structures and orientation unrelated to Corinth or the Isthmus. In the regions south of Oneion, the project's geoarchaeological team spotlighted a range of small natural harbors and embayments with accompanying settlements that glowed at different times in the past, especially prehistoric times.[27] The discovery and subsequent investigation of prehistoric remains at Kato Vayia near Lychnari Bay and a submerged Bronze Age harbor and town at Kalamianos-Akrotirio Trelli near Korphos caused a rethink of the dominance of Mycenae or Corinth for these coastal zones (Sections 3.2, 4.1, and 4.2.1). In one important study, Pullen and Tartaron argued that the southeastern regions of the Corinthia in the later Bronze Age were not oriented to mainland sites at all—not to Corinth (which lacked a palace), nor to Mycenae with its well-known citadel—but to the coastal horizon of the Saronic Gulf, especially the prominent maritime center of Kolonna on Aegina.[28] A coastscapes approach draws attention to interactions "beyond the Corinthia," to the "regions and places connected via the sea to our coastal sites, especially other harbors."[29] The Corinthian Isthmus, by contrast, formed a stable zone of occupation at several large settlements (Perdikaria, Gonia, and Korakou) but was peripheral rather than central to geopolitical networks.

The logic of settlement and relationship of town and territory looked significantly different in the Classical–Hellenistic period after Corinth had developed into a major polis in control of a vast territory. In particular, the openness of the Isthmus to outsiders could be both blessing and curse as it facilitated maritime connection but also encouraged external invasion and control. The eastern region supported an important emporium at Isthmia, but its most dominant signature was its role as defensive gate at the entrance to the Peloponnese.[30] We see this transformation in the ways that contemporaries spoke about the region (as gate, fortress, and fetter), the ubiquitous fortification walls of fifth to third century BC date, and the bright ceramic signatures documented by the survey that suggest economic stimulation under early Hellenistic kings. Many of these walls and forts represented episodic monumental investment and occupation in a network of communication and control (cf. Section 4.2.2): the fortification in the Maritsa Pass (LOCA 9008), for example, or the fortified building and probable farm at Ano Vayia (LOCA 9156) near the Lychnari Tower (LOCA 9233), speak to generational habitation of marginal zones at times of insecurity.[31] Some investments, however, were clearly more consequential: the construction of a trans-Isthmus wall from Kenchreai to the district east of Lechaion had long-lasting impact on settlement systems by also creating an extensive system of quarries (the immediate source of stone for the wall), guarded gates and passages, and newly defined roads. The extensive assemblage of material at Kromna did not emerge by accident but comprised the major settlement at the most important gateway on the Isthmus, occupying the passage into the immediate neighborhood of Corinth along the major roads from Kenchreai to Lechaion, and Isthmia to Corinth.[32] Intensive settlement zones like Kromna and Isthmia environs were of course only the major nuclei within a broader carpet of moderate to high artifact densities of Archaic–Hellenistic date (Section 12.3). But the dominant pattern during this period is that of a landscape carefully monitored and controlled through fortifications, nodes, outposts, and central places (Isthmia). The eastern Corinthia marked the gateway to the city.

The question of town and territory appears markedly different in Roman times (Section 12.4, Ch. 13). During the long period of peace that followed Roman refoundation, we noted very little material at those places in Corinthian territory most suited for defense: Ano and Kato Vayia, for example, and the Maritsa Pass of Mount Oneion, lack the dominant signatures of earlier times. Even the material associated with Kromna shows no major indicators of significant habitation in the early Roman period. Instead, we find a widely distributed pattern of debris that is consistent with the region's new colonial status and orientation to small-scale agriculture.[33] Judging from excavated examples of rural sites like the atrium-style villa at Pano Magoula near New Corinth, and the mixed ceramic character of high-density areas, these scatters primarily represent debris deposited through farming and habitation.[34] The settlement of the eastern territory, therefore, was not nucleated, as scholars had once argued, but distributed in a dense zone of suburban settlement (cf. Sections 4.2.3, 13.1).[35] The Corinthia, in short, was not neatly divided from its urban space but extended the productive and consumptive capacities of Corinth to its seas. As I concluded in a previous assessment, the Isthmus formed "an important transitional zone between city and countryside that allowed wealthier citizens especially to enjoy the leisure and beauty of the territory while still within walking distance of the city. Settlements in peri-urban zones contributed to the productive capacity of the ancient city; town and territory mutually benefited each other through networks of exchange."[36]

Data-rich approaches allow us to map the layers of landscape at the finer grain of period and zone and encourage rethinking long-standing historical questions (Ch. 13 and Ch. 14). Thinking *with* survey data means looking beyond dots on the map to the constantly changing aggregations, assemblages, and layers of artifacts, features, agents, and earth that relate and overlap in complicating ways. The challenges that lie before us include capturing a wider sample of the landscape through a range of classes of evidence and moving beyond a recognition of a generally busy countryside to reconstructing a landscape with intraregional and chronological differences. This is especially important for those lower visibility periods for which our methods of traditional survey fail nearly altogether to reveal the patterns of the past.

14.3. Looking Forward: Thinking *beyond* Survey Data

This book closes one phase of the study and publication of the EKAS material but opens another as it makes linked open data available for further exploration. The records of the survey are now more accessible and understandable than ever and ought to be studied for the insights they provide on the history of the Corinthian countryside. The online collections at Open Context make available most of the project's datasets and photographs for browsing, searching, downloading, and analysis (Ch. 7 and Ch. 8).[37] The physical documents and records of the project, moreover, including correspondence, permit requests, and grant applications, are slated for compilation, curation, and storage at the Timothy E. Gregory Archives at Michigan State University in East Lansing, Michigan. And the 3,000+ physical artifacts collected during survey are stored and available for restudy at the Michigan State University excavation house at Isthmia.

As we look to the horizons, one thing is clear: the potential pathways for data reuse, analysis, and interpretation are boundless. I have offered some concrete examples in this work of what and how one might study the results of survey, but open-ended prospects invite wide exploration (Ch. 4). Some data, of course, might claim clear priority for our study. The Protogeometric–Hellenistic and Modern periods, for one, demand foundational higher-resolution studies of distributions and assemblages of the sort carried out for other periods,[38] to characterize land use and habitation of the Corinthian countryside during these broad periods. We clearly need a better understanding of the relationship of Geomorphic Units, the patterns of different periods, and the overall patterning of artifacts and features in order to understand the co-development of humans and their landscapes and the effects of geomorphology on artifact recover rates. The survey's inventory of important places—those Localized Cultural Anomalies defined as significant in the process of survey (Ch. 6)—forms another starting point for exploring Corinthian pasts in specific locations. The gridded LOCAs should naturally reward fine-grained analysis of density.

But well beyond these priorities, linked open datasets recommend and reward tinkering along numerous lines all at once. Tinkering with the Eastern Korinthia Archaeological Survey datasets through database queries and spatial analysis, after all, was what first opened our eyes to the invisible landscapes of the archaic period and the early Roman period, and the distorting effects of differential period visibility on our impressions of boom-and-bust settlement cycles.[39] Tinkering also sheds light on the complex relationship between visibility, artifact density, and sample size as it pertained to poorly understood periods such as the Ottoman Corinthia.[40] Such examples show how important it is to play with, query, and follow data's trajectories toward wider questions. Creative tinkering can allow us to see more in the history of a single region and can lead us to rethink the most essential demographic, social, and economic questions of Mediterranean history.[41]

Ultimately, we ought to see linked open published digital datasets as primarily a launching point for exploring and engaging with regional territory along a range of methodological and evidentiary lines. The analyses of survey data, environmental information, finds records, and geospatial files, for their part, provide new ways of seeing humans in their landscape through quantitative technologies. Their value lies firstly not in the advancement of method, nor in the novelty of approach, nor even in data for the sake of data, but rather in their capacity to prompt new sorts of questions about landscape histories. Analysis of big survey data ought to lead beyond that data to other sources and modes of investigation that create different ways of seeing the complex human histories of landscape. This is all the more necessary for less visible landscapes, such as that of the long Medieval era, in which ceramic remains inadequately convey the importance of territory.

Figure 14.1. Preparation for drone survey over formerly surveyed EKAS units in the spring of 2018 at Harrisburg University of Science and Technology. Photo by author.

Let me end by providing a final example of learning to think *beyond* survey data to wider vantage points of other evidence when writing histories of the region.

In the spring and summer of 2023, as I was finalizing this study, I had the fortune to return to the Corinthia with collaborators and students for three weeks of research related to “Washingtonia,” a refugee colony founded in 1829 by the American philanthropist Samuel Gridley Howe, the Greek governor Ioannis Kapodistrias, and the Scottish philhellene George Finlay.[42] Following the Greek War of Independence, Howe and his collaborators planted a small agricultural colony in the vicinity of Examilia village. Families of displaced peoples uprooted during the war comprised this colony. Using American funds and a land grant from the Greek state, Howe acquired fields, farming equipment, and seed, and committed to a local program of humanitarian aid offered to several dozen individuals with the long-term goal of creating a self-sustaining capital settlement at the heartland of Greece.[43] Remarkably, primary textual accounts of the colony survived in Howe’s diary, the correspondence of Howe and Kapodistrias, traveler narratives, and tax records of the Greek government. James Wiseman published a brief sketch of the colony in *Land of the Ancient Corinthians* (1978).[44]

Figure 14.2. Faculty and students from Messiah University and Harrisburg University of Science and Technology carrying out a drone survey in 2017. Photos by author.

The senior staff of the Eastern Korinthia Archaeological Survey were naturally interested in locating the colony because of the project's commitment to the archaeology of the modern period and its proximity to areas under active pedestrian survey including zones surrounding Examilia and Xylokeriza.[45] Yet, the settlement's location evaded EKAS archaeologists because the written accounts indicated different, sometimes contradictory, scenarios about its whereabouts, and described the colony not simply as a place, but a series of places in a territory stretching from Examilia Village to Kenchreai. For example, in the course of survey, local residents reported a certain local toponym—*Nosokomeio*, the Greek word for "hospital"—which, if it referenced the colony's field hospital, would situate it in the district southeast of Xylokeriza, a kilometer away from the center of Examilia. Clearly Washingtonia could not simply or only be equated with the village of Examilia as Wiseman's summary of the colony had implied. But we had no real way of pinpointing the settlement's location because of the patchy sampling of the landscape.

My colleagues and I made a breakthrough in the search for Washingtonia when we introduced different ways of seeing the landscape through a more comprehensive geospatial framework integrating remote sensing, historical maps, primary documents, aerial photographs, and architectural study.[46] From 2016 to 2017, Albert Sarvis, Kostis Kourelis, and I undertook a new program of studying the landscape, a program centered around drone photography of the EKAS region and oriented to contextualizing survey data, sensing buried features, and reconstructing the episodic transformation of the region in the modern period. We began to work toward a GIS-based landscape characterization that could establish how more recent Corinthian history had rewritten the landscape, especially in moments of rapid change,[47] including episodes such as the Corinth Canal project, Greek military encampments, German occupation, development of highway and train networks, large-scale quarrying, and rapid development of suburban estates. Part of that entailed archival work in the United States and Greece to gather documents, maps, and aerials concerning Washingtonia and the nineteenth and twentieth century Corinthia, while part entailed collecting high-resolution drone imagery through UAV photography over parts of the EKAS region in 2017 and 2018. Kourelis, who had been studying migration during the 2016 European refugee crisis,[48] pushed us to study Washingtonia and other modern episodes of the region as part of a continuous modern history of humanitarian interventions.[49] We planned for a digital field school in the spring of 2020 that would involve undergraduate students in the conversation of migration studies; that is, until Covid-19 intervened.[50]

When we returned to the Corinthia in the early summer of 2023, we brought a group of undergraduate students to study Washingtonia. Our brief three-week course was successful beyond expectations. Armed with mobile devices and a GIS for integrating different layers of the Isthmus (historic maps, high-resolution WWII-era aerial photographs, and higher-resolution drone imagery), we sought to identify the major places associated with the colony. Particularly important was the "key" that our collaborator, Nikos Poulopoulos, generously shared with us—a draft version of a Corinthian map made by the geographer Pierre Peytier during his cartographic work for the French Scientific Expedition of the Morea in 1829 through 1831. Having georeferenced and imported this contemporary map into the ArcGIS Field Map app, we simply followed our handheld devices to the primary places that Peytier observed and Howe described in the aftermath of the Greek War of Independence: Howe's house, village houses, hospital, school, and magazines at Kenchreai. A visit with local Corinthian historian Anastasios Tsigkos confirmed our observations with a tour of the Examilia district and Corinthian toponyms.[51] Twenty-five years after EKAS teams first canvassed the area, we discovered the short-lived farming colony and refugee camp of Washingtonia, situated in the location of the modern village of Examilia, to be sure, but dispersed also toward Xylokeriza and Kenchreai, within a wider landscape of streams, towers, chapels, churches, mosques, and settlements.

I include this final example to highlight the sort of slow archaeology that rewards the process of studying landscapes gradually and over time, of learning to see local complexity in the application of new methods and evidence, and of studying the countryside comprehensively and granularly in terms of its dynamic shifting relationships. Slow archaeology of this sort never really ends in the final publication because changes in how and what we see require constant rethinking. Like all legacy projects, then, the datasets published through the EKAS project offer a new set of primary sources and a range of pathways for the study of Corinthian countrysides—that can and should lead beyond that data to clearer, more holistic views of regional history.

This new program of investigating the region's sites of displacement, moreover, has potential to enlarge the conversation of academics and local historians, which was, after all, a goal of the original proposal submitted by EKAS. If the discipline of classical archaeology often extracted goods, material, and information from local communities for the sake of their own interests, we see the current move toward modern landscapes as an appropriate act of rebalancing and reconciliation, which may serve the broader public good by forging new relationships with local communities and organizations.

Endnotes

1 Ammerman 2004, 177. Cf. Meyer 2022, 146–150.
2 Schiffer 1985, 1996; LaMotta and Schiffer 1999.
3 Caraher, Nakassis, and Pettegrew 2006, 27; Attema et al. 2020, 11, 13.
4 Pettegrew 2001; Pettegrew 2016, 25–27.
5 See Pettegrew 2015, Tartaron 2015, and Pullen 2019 for interpretations of such categories (towns, farms, and villas) from the Bronze Age and Roman period.
6 Attema et al. 2020, 19.
7 Caraher, Nakassis, and Pettegrew 2006.
8 Pettegrew and Caraher 2021.
9 Pettegrew and Caraher 2021, 308.
10 Bintliff 2023.
11 Revised Proposal 1998; Tartaron et al. 2006, 456.
12 Project Proposal: https://n2t.net/ark:/28722/k2hd88918.
13 Pettegrew 2016.
14 Engels 1990.
15 Salmon 1984.
16 On the eclipse of the countryside for certain periods, see Pettegrew 2015, 289–290 and Pettegrew 2016, 10–12, with references. See two imagined ancient journeys over a mostly empty Isthmus: Broneer 1962, 20–21; Murphy-O'Connor 1984, 149.
17 New Testament scholars for their part treated the apostle Paul and the Pauline community at Corinth as wholly products of dynamic urbanism, not the static, changeless, and empty countryside. See Meeks 1983. Cf. Pettegrew 2016b, with citations. Hannah Lents, forthcoming, is studying the subject as a doctoral dissertation on early Christianity and the Corinthian countryside.
18 Pettegrew 2011, 2013, 2016; Korka and Rife 2013, 2022; Caraher 2013, 2015a.
19 Finley 1973, 130–31.
20 Horden and Purcell 2000, 105–10.
21 See Campana 2016 and 2017 for the concept of "archaeological continuum" in previously imaged empty landscapes.
22 Pullen and Tartaron 2007 have underscored the striking element of continuity even in prehistoric times (from the Neolithic to Late Bronze Age) within a few major settlements on the Corinthian plain.
23 The Panhellenic sanctuary was transformed from a religious site to a military zone in late antiquity: Kardulias 1995 and 2005; Gregory 1993, 2013; Frey 2015, 2020; Frey and Gregory 2016.
24 For examples and discussion, see Tartaron et al. 2006, 494–513; Rife et al. 2007; Pettegrew 2016, 108–109, 201–204; Korka and Rife 2013, 2022.
25 Kardulias 2005.
26 Tsigkos 2020; Kourelis and Pettegrew 2021; Pettegrew et al. 2024.
27 Rothaus et al. 2003; Tartaron, Rothaus, and Pullen 2003.
28 Pullen and Tartaron 2007, 146.
29 Pullen and Tartaron 2007, 152.

30 Pettegrew 2016, 47–88.

31 LOCA 9008 (https://n2t.net/ark:/28722/k2sj1td0z), LOCA 9156 (https://n2t.net/ark:/28722/k2514bh8r), and LOCA 9233 (https://n2t.net/ark:/28722/k2474qd4s).

32 Pettegrew 2016, 82–86.

33 Romano 2003, 2006, 2010.

34 Pettegrew 2015.

35 Our closest parallels can be found in the dense zones surrounding major Roman capital cities such as Syrian Antioch. Casana 2004; de Giorgi 2016.

36 Pettegrew 2015, 310. While the suburban zones were densest in the rich land of the Isthmus, even the remote valley of Lakka Skoutara with its arable land shows evidence of farming in this period.

37 https://n2t.net/ark:/28722/k25d97c30

38 See Chapter 13 for the Roman period; and Pettegrew and Caraher, 2025, for the Medieval.

39 Caraher, Nakassis, and Pettegrew 2006; Pettegrew 2007, 2010.

40 Caraher, Nakassis, and Pettegrew 2006.

41 Caraher, Nakassis, and Pettegrew 2006.

42 For discussion, with references, see Gregory 2007; Sanders 2013; Kourelis and Pettegrew 2021; Pettegrew et al. 2024.

43 See now Sanders 2013, who analyzes the primary sources associated with the colony to make inferences about the agricultural practices and sharecropping in nineteenth century Greece.

44 Wiseman 1978, 69.

45 Diacopoulos 2004; Gregory 2007, 180.

46 On "third-wave survey" and new ways of sensing landscapes, see Campana 2016, 2017.

47 Like the Corinth Computer Project: Romano 1989; Romano and Tolba 1996; Romano and Stapp 2002.

48 Kourelis 2018 and 2021.

49 Pettegrew et al. 2024.

50 Kourelis 2023.

51 Tsigkos discusses the settlement in his recent book: Tsigkos 2020, 520–524.

Appendix I
EKAS Documents

The following offers a comprehensive bibliography of the documents, reports, papers, and publications produced by staff of the Eastern Korinthia Archaeological Survey from 1997–2023. Part 1 includes most of the original internal documents and reports of the project, which I have redacted and edited lightly to remove sensitive or private information. Most of these reports are available for download in Open Context. Part 2 lists the project's publications and papers through 2023, most of which are available for free online via JSTOR, personal websites, institutional repositories, or Open Context.

I.1. Original Documents and Reports

I.1.1. Proposal for Survey

Gregory, Timothy E., and Frederick P. Hemans. "Eastern Korinthia Archaeological Survey: Revised Proposal to the American School of Classical Studies Excavation and Survey Committee, 1998." Ancient Corinth: The Eastern Korinthia Archaeological Survey, October 4, 1998. https://n2t.net/ark:/28722/k2hd88918.

I.1.2. Final Reports to the Ministry of Culture

Gregory, Timothy E., and Frederick P. Hemans. "The Eastern Korinthia Archaeological Survey: A Report to the Ministry of Culture, 1999." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k29k4rq9n.

Gregory, Timothy E., and Daniel J. Pullen. "The Eastern Korinthia Archaeological Survey: A Report to the Ministry of Culture, 2000." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2cn7jg61.

———. "The Eastern Korinthia Archaeological Survey: A Report to the Ministry of Culture, 2002." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2002. https://n2t.net/ark:/28722/k2gx4r542.

———. "The Eastern Korinthia Archaeological Survey: A Report to the Ministry of Culture, 2003." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2003. https://n2t.net/ark:/28722/k2fb5gj1f.

Gregory, Timothy E., Daniel J. Pullen, and Thomas F. Tartaron. "The Eastern Korinthia Archaeological Survey: A Report to the Ministry of Culture, 2001." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2c541c2k.

I.1.3. Field Manuals

Michl, Gina, Naomi Levin, and Jay Noller. "Tips for EKAS Geomorphology Interns." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2k366b5k.

Tartaron, Thomas F., Timothy E. Gregory, David K. Pettegrew, William Caraher, and Dimitri Nakassis. "The Eastern Korinthia Archaeological Survey Project: A Field Manual for the 2001 Season." Ancient Corinth: Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2000jx9p.

Wells, Lisa E., and Jay S. Noller. "Eastern Korinthia Archaeological Survey: Instructions for Geomorphology Interns." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k23n2kc0t.

I.1.4. Collection and Survey Forms

Diacopoulos, Lita. "EKAS Local Oral Information Recording Form." The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2kp8dp4p.

———. "EKAS Modern Cemetery Recording Form." The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2qf94g99.

Noller, Jay S., and Lisa E. Wells. "EKAS Geomorphology Form." The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k22r47v1x.

Pettegrew, David K. "EKAS Revisit and Extensive Form." The Eastern Korinthia Archaeological Survey, 2003. https://n2t.net/ark:/28722/k2v69v945.

Pullen, Daniel J. "EKAS Survey Unit Item Registry Form." The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k26d6884q.

Tartaron, Thomas F. "EKAS Discovery Unit Form." The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2z03j655.

———. "EKAS Discovery Unit Form." The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2mp5fz79.

———. "EKAS LOCA Collection Form." The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2b57028v.

———. "EKAS LOCA Designation and Initial Assessment Form." The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2fx7pw11.

I.1.5. EKAS Field Reports

Bruno, Carrie, Stella Kortekaas, and Sarah King. "Geomorphology Interns Final Report 2000." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2j96k75j.

Caraher, William R. "Extensive Team Final Report, 2001." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2cj8th64.

———. "Extensive Team Mid-Season Report, 2001." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, July 19, 2001. https://n2t.net/ark:/28722/k2n308471.

———. "Extensive Team Report on Investigations at Frankolimano, 2001." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2h99jb2v.

———. "Extensive Team Report on Investigations of Mt. Oneion Fortifications, 2001." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2rr28j7n.

Caraher, William R., and Sarah King. "Extensive Team Final Report, 2000." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2417cx0h.

Davis, Andrew. "Experimental Team Final Report, 2001." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2086p37n.

———. "The World War II Gun Emplacements on Rachi near Kyras Vrysi." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2tq6bb7k.

Diacopoulos, Lita. "Modern Archaeology Final Report, 2000." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2280qw5r.

———. "Research Plans for the Modern Period (1827–2000 A.D.)." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2xh01824.

Drakaki, Eleni. "DU Team 3 Final Report, 2001." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2qv3z20c.

Michl, Gina, and Naomi Levin. "Geomorphology Interns Final Report 1999." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2dj5vf0x.

———. "Sample Geomorph Report." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2pz5mj4x.

Nakassis, Dimitri. "DU Team 2 Final Report, 2000." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2bk1sm7x.

———. "DU Team 2 Final Report, 2001." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2m33775t.

Noller, Jay, Lisa Wells, Eduard Reinhardt, and Richard Rothaus. "Report on KRRC Geomorphology, Summer 1997." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1997. https://n2t.net/ark:/28722/k28s54m52.

Pettegrew, David K. "DU Team 1 Final Report, 2000." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k26t12t54.

———. "DU Team 1 Final Report, 2001." Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2gb2hf06.

———. "Investigations at Ano Vayia and Revisits, 2003." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2003. https://n2t.net/ark:/28722/k2pv6x504.

———. "Extensive Survey Report, 2007." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2007. https://n2t.net/ark:/28722/k27s83q3v.

Pullen, Daniel J. "Processing Team Final Report, 1999." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2611fp9w.

Pullen, Daniel J., and Kim Beaufils. "Processing Team Final Report, 2000." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k29s25h4t.

Pullen, Daniel J., and Amy Dill. "Processing Team Final Report, 2001." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001. https://n2t.net/ark:/28722/k2fj2w992.

Rife, Joseph L. “Season Report: Study of the Corinthian Mortuary Landscape, 2000.” EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000.

———. “Season Report: Study of the Corinthian Mortuary Landscape, 2001.” EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2001.

Rothaus, Richard M., Eduard G. Reinhardt, and Thomas F. Tartaron. “Prehistoric and Ancient Harbors in the Korinthia (Greece): A Geoarchaeological Approach for Determining Maritime Trade Patterns. 1999 Season.” EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2tm7mz6t.

Sarris, A. “Technical Report: Geophysical Prospection Survey at Kromna-Kesimia and Perdikaria as Part of the Eastern Korinthia Archaeological Survey (EKAS - 2002).” Rethymnon: Institute for Mediterranean Studies, Foundation of Research and Technology, Hellas (F.O.R.T.H.), 2003. https://n2t.net/ark:/28722/k2nz8kn36.

Schon, Robert. “LOCA Team Final Report, 2000.” EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2sq99f8t.

———. “The Experimental Survey Program, July 1999.” EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2vh5zg3r.

Smith II, Andrew M. “DU Team 2 Final Report, 1999.” Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2320c11q.

Stein, Carol A. “DU Team 1 Final Report, 1999.” Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2z89nc5p,

Tartaron, Thomas F. “Eastern Korinthia Archaeological Survey Final Field Report, 1999.” EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2wh30c2w.

———. "Eastern Korinthia Archaeological Survey Final Field Report, 2000." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 2000. https://n2t.net/ark:/28722/k2183q08c.

———. "Eastern Korinthia Archaeological Survey Mid-Season Field Report, 1999." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, 1999. https://n2t.net/ark:/28722/k2514dt0r.

Trail, Brian, and Manuel Guterres. "The Wall at Rachi Boska." EKAS Field Reports. Ancient Corinth: The Eastern Korinthia Archaeological Survey, July 13, 2002. https://n2t.net/ark:/28722/k2k64wr03.

I.2. Publications related to the Eastern Korinthia Archaeological Survey

The bibliography below provides a list of EKAS publications organized by period. Because some publications deal with more than one period, a few entries are repeated. This list does not capture all publications of spin-off projects but offers a comprehensive list of published articles, papers, and books directly related to EKAS through June 2023.

I.2.1. General and Methodological

Caraher, William R., Dimitri Nakassis, and David K. Pettegrew. "Siteless Survey and Intensive Data Collection in an Artifact-Rich Environment: Case Studies from the Eastern Corinthia, Greece." *JMA* 19.1 (2006), 7–43. https://doi.org/10.1558/jmea.2006.19.1.7.

Gregory, Timothy E. "Less Is Better: The Quality of Ceramic Evidence from Archaeological Survey and Practical Proposals for Low-Impact Survey in a Mediterranean Context." In *Mediterranean Archaeological Landscapes: Current Issues*, edited by Effie-Fotini Athanassopoulos and LuAnn Wandsnider, Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2004. https://doi.org/10.9783/9781934536285.15.

Moore, R. Scott. "A Decade Later: The Chronotype System Revisited." In *Archaeology and History in Roman, Medieval and Post-Medieval Greece: Studies on Method and Meaning in Honor of Timothy E. Gregory*, edited by William R. Caraher, Linda Jones Hall, and R. Scott Moore, Ashgate Publishing, Ltd., 2008. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315262277-19/decade-later-chronotype-system-revisited-scott-moore.

Rothaus, Richard, Eduard Reinhardt, Thomas F. Tartaron, and Jay Noller. "A Geoarchaeological Approach for Understanding Prehistoric Usage of the Coastline of the Eastern Korinthia." In *Metron: Measuring the Aegean Bronze Age*, edited by Karen P. Foster and Robert Laffineur, 37–47. Liège, 2003.

Schon, Robert. "Vox Clamantis in Campo: Further Thoughts on Ceramics and Site Survey." In *Our Cups Are Full: Pottery and Society in the Aegean Bronze Age. Papers Presented to Jeremy B. Rutter on the Occasion of His 65th Birthday*, edited by Walter Gauß, Michael Lindblom, Angus Smith, and James C. Wright, 231–41. Oxford: Archaeopress, 2011. https://www.jstor.org/stable/j.ctv177tjw2.

———. "Seeding the Landscape: Experimental Contributions to Regional Survey Methodology." Ph.D., Bryn Mawr College, 2002. https://www.proquest.com/openview/2da7fdab8e1d10feeebce863aba66692/.

Tartaron, Thomas F., Richard M. Rothaus, and Daniel J. Pullen. "Searching for Prehistoric Aegean Harbors with GIS, Geomorphology, and Archaeology." *Athena Review* 3(4) (2003): 27–36. http://www.athenapub.com/AR/12aegean.htm.

Tartaron, Thomas F., Timothy E. Gregory, and Daniel J. Pullen. "The Eastern Korinthia Archaeological Survey: Progress Report 1997–2000." Annual Meeting of the Archaeological Institute of America. San Diego, 2001. https://n2t.net/ark:/28722/k22521h4s.

Tartaron, Thomas F., Timothy E. Gregory, Daniel J. Pullen, Jay S. Noller, Richard M. Rothaus, Joseph L. Rife, Lita Tzortzopoulou-Gregory, Robert Schon, William R. Caraher, David K. Pettegrew, and Dimitri Nakassis. "The Eastern Korinthia Archaeological Survey: Integrated Methods for a Dynamic Landscape," *Hesperia* 75.4 (2006), 453–523. https://www.jstor.org/stable/25068001.

I.2.2. Prehistoric

Nixon, Francis C., Eduard G. Reinhardt, and Richard M. Rothaus. "Foraminifera and Tidal Notches: Dating Neotectonic Events at Korphos, Greece." *Marine Geology* 257 (2009): 41–53. https://doi.org/10.1016/j.margeo.2008.10.011.

Pullen, Daniel J., Thomas F. Tartaron, Richard M. Rothaus, Dimitri Nakassis, and Amy Dill. "Patterns in the Later Prehistory of the Eastern Korinthia." Annual Meeting of the Archaeological Institute of America. Philadelphia, 2002. https://n2t.net/ark:/28722/k25t41x5w.

Rothaus, Richard, Eduard Reinhardt, Thomas F. Tartaron, and Jay Noller. "A Geoarchaeological Approach for Understanding Prehistoric Usage of the Coastline of the Eastern Korinthia." In *Metron: Measuring the Aegean Bronze Age*, edited by Karen P. Foster and Robert Laffineur, 37–47. Liège, 2003.

Tartaron, Thomas F. "The Settlement at Kalamianos: Bronze Age Small Worlds and the Saronic Coast of the Southeastern Corinthia." In *Bridge of the Untiring Sea: The Corinthian Isthmus from Prehistory to Late Antiquity*, edited by Elizabeth R. Gebhard and Timothy E. Gregory. Hesperia Supplements 48. Princeton, NJ: The American School of Classical Studies at Athens, 2015. https://www.jstor.org/stable/24637420.

———. "Between and Beyond: Political Economy in Non-Palatial Mycenaean Worlds." In *Political Economies of the Aegean Bronze Age*, edited by Daniel J. Pullen, 161–83. Oxford: Oxbow Books, 2010. https://www.jstor.org/stable/j.ctt1cfr9g8.

Tartaron, Thomas F., Daniel J. Pullen, and Jay S. Noller. "Rillenkarren at Vayia: Geomorphology and a New Class of Early Bronze Age Fortified Settlement in Southern Greece," *Antiquity* 80 (2006), 145–160. https://doi.org/10.1017/S0003598X00093327.

Tartaron, Thomas F., Daniel J. Pullen, Richard K. Dunn, Lita Tzortzopoulou-Gregory, Amy Dill, and Joseph I. Boyce. "The Saronic Harbors Archaeological Research Project (SHARP): Investigations at Mycenaean Kalamianos, 2007–2009." *Hesperia* 80.4 (2011): 559–634. https://doi.org/10.2972/hesperia.80.4.0559.

Tartaron, Thomas F., Richard M. Rothaus, and Daniel J. Pullen. "Searching for Prehistoric Aegean Harbors with GIS, Geomorphology, and Archaeology." *Athena Review 3.4* (2003), 27–36. http://www.athenapub.com/AR/12aegean.htm.

I.2.3. Protogeometric–Hellenistic

Caraher, William R., and Timothy E. Gregory. "Fortifications of Mount Oneion, Corinthia." *Hesperia* 75 (2006), 327–356. https://www.jstor.org/stable/25067991.

Caraher, William R., David K. Pettegrew, and Sarah A. James. "Towers and Fortifications at Vayia in the Southeast Corinthia." *Hesperia* 79.3 (2010), 385–415. https://www.jstor.org/stable/40981055.

Caraher, William R., Dimitri Nakassis, and David K. Pettegrew. "Siteless Survey and Intensive Data Collection in an Artifact-Rich Environment: Case Studies from the Eastern Corinthia, Greece." *JMA* 19.1 (2006), 7–43. https://doi.org/10.1558/jmea.2006.19.1.7.

James, Sarah A. "An Olive Press Installation from the Eastern Korinthia." Poster for the Annual Meeting of the Archaeological Institute of America, Boston 2005.

Pettegrew, David K. *The Isthmus of Corinth: Crossroads of the Mediterranean World*. Ann Arbor, MI: University of Michigan Press, 2016. https://www.jstor.org/stable/10.3998/mpub.5074123.

I.2.4. Roman

Caraher, William R. "The Ambivalent Landscape of Christian Corinth: The Archaeology of Place, Theology, and Politics in a Late Antique City." In *Corinth in Contrast: Studies in Inequality*, edited by Steven J. Friesen, Sarah A. James, and Daniel N. Schowalter, 143–165. Leiden: Brill, 2014. https://brill.com/view/title/21407.

Caraher, William R., and David K. Pettegrew. "Imperial Surplus and Local Tastes: A Comparative Study of Mediterranean Connectivity and Trade." In Across the Corrupting Sea: Post-Braudelian Approaches to the Ancient Mediterranean, edited by Cavan Concannon and Lindsey A. Mazurek, 165–191, London: Routledge 2016. https://www.routledge.com/Across-the-Corrupting-Sea-Post-Braudelian-Approaches-to-the-Ancient-Eastern/Concannon-Mazurek/p/book/9780367880644.

Caraher, William R., Dimitri Nakassis, and David K. Pettegrew. "Siteless Survey and Intensive Data Collection in an Artifact-Rich Environment: Case Studies from the Eastern Corinthia, Greece." *JMA* 19.1 (2006), 7–43. https://doi.org/10.1558/jmea.2006.19.1.7.

Gregory, Timothy E. "Η Ανατολική Κορινθία Στην Παλαιοχριστιανική Εποχή." In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistoric Times Until the End of Antiquity*, edited by Konstantin Kissas and Wolf-Dietrich Niemeier, 275–84. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013a.

———. "Religion and Society in the Roman Eastern Corinthia." In *Corinth in Context: Comparative Studies on Religion and Society*, edited by Steven J. Friesen, Daniel N. Schowalter, and James C. Walters. Leiden: Brill, 2010, 433–476. https://brill.com/view/title/15183.

Pettegrew, David K. *The Isthmus of Corinth: Crossroads of the Mediterranean World*, Ann Arbor, MI: University of Michigan Press, 2016. https://www.jstor.org/stable/10.3998/mpub.5074123.

———. "Corinthian Suburbia: Patterns of Roman Settlement on the Isthmus." In *Bridge of the Untiring Sea: The Corinthian*

Isthmus from Prehistory to Late Antiquity, edited by Elizabeth Gebhard and Timothy E. Gregory. Princeton: American School of Classical Studies at Athens, 2015, 289–310: . https://www.jstor.org/stable/24637432.

———. "The *Diolkos* of Corinth." *American Journal of Archaeology* 115.4 (2011), pp. 54.–574. https://www.jstor.org/stable/10.3764/aja.115.4.0549.

———. "Regional Survey and the Boom-and-Bust Countryside: Re-reading the Archaeological Evidence for Episodic Abandonment in the Late Roman Corinthia." *International Journal of Historical Archaeology*, 14.2 (2010), 215–229. https://www.jstor.org/stable/41719786.

———. "The End of Ancient Corinth? Views from the Landscape." In *Archaeology and History in Roman, Medieval and Post-Medieval Greece: Studies on Method and Meaning in Honor of Timothy E. Gregory*, edited by William R. Caraher, Linda Jones Hall, and R. Scott Moore, Ashgate Publishing, Ltd., 2008, 249–266. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315262277-26/end-ancient-corinth-views-landscape-david-pettegrew.

———. "The Busy Countryside of Late Roman Corinth: Interpreting Ceramic Data Produced by Regional Archaeological Surveys." *Hesperia* 76.4 (2007), 743–784. https://www.jstor.org/stable/25068042.

———. "Corinth on the Isthmus: Studies of the End of an Ancient Landscape" (diss. Ohio State Univ.), Columbus 2006. http://rave.ohiolink.edu/etdc/view?acc_num=osu1152884521.

Pettegrew, David K., and William Caraher. "From Corinthian Twilight to the Busy Countryside. Remaking the Landscapes, Monuments, and Religion of the Late Antique Corinthia." In *Korinth II: Das römische Korinth*, edited by C. Auffarth in collaboration with S. Krauter, 365–390. Civitatum Orbis Mediterranei Studia, Vol. 7. Tübingen, 2024: Mohr Siebeck. https://www.mohrsiebeck.com/en/book/korinth-ii-das-roemische-korinth-9783161625466/

Rife, Joseph L., Melissa Moore Morison, Alix Barbet, Richard K. Dunn, Douglas H. Ubelaker, and Florence Monier. "Life and Death at a Port in Roman Greece: The Kenchreai Cemetery Project, 2002–2006." *Hesperia* 76.1 (January 1, 2007): 143–81. https://www.jstor.org/stable/25068015.

I.2.5. Medieval

Caraher, William R., and Timothy E. Gregory. "Fortifications of Mount Oneion, Corinthia." *Hesperia* 75 (2006), 327–356. https://www.jstor.org/stable/25067991.

Caraher, William R., Dimitri Nakassis, and David K. Pettegrew. "Siteless Survey and Intensive Data Collection in an Artifact-Rich Environment: Case Studies from the Eastern Corinthia, Greece." *Journal of Mediterranean Archaeology* 19.1 (2006), 7–43. https://doi.org/10.1558/jmea.2006.19.1.7.

Gregory, Timothy E. "People and Settlements of the Northeastern Peloponnese in the Late Middle Ages: An Archaeological Exploration." In *Viewing the Morea: Land and People in the Late Medieval Peloponnese*, edited by Sharon E. J Gerstel, 276–306. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 2013b.

Gregory, Timothy E., and Lita Tzortzopoulou-Gregory. "Archaeological Survey and Understanding the Rural Landscape in Byzantine Greece: Some Specific Examples." *Journal of Greek Archaeology* 5 (2020), 514–527. http://archaeopresspublishing.com/ojs/index.php/JGA/article/view/447.

Pettegrew, David K. "Regional Survey and the Boom-and-Bust Countryside: Re-Reading the Archaeological Evidence for Episodic Abandonment in the Late Roman Corinthia." *International Journal of Historical Archaeology* 14, no. 2 (June 2010): 215–29. https://doi.org/10.1007/s10761-010-0105-y.

Pettegrew, David K., and William R. Caraher. "High-Resolution Survey and the New Quest for the Byzantine Landscape: A Case Study from the Corinthia, Greece." In *Beyond Icons: Theories and Methods in Byzantine Archaeology*, edited by Darlene Brooks Hedstrom, Kostis Kourelis, and William R. Caraher. New York: Routledge, 2025. https://www.routledge.com/Beyond-Icons-Theories-and-Methods-in-Byzantine-Archaeology-in-North-America/Caraher-Kourelis-BrooksHedstrom/p/book/9781032351179

I.2.6. Modern

Diacopoulos, Lita. "The Archaeology of Modern Greece." In *Mediterranean Archaeological Landscapes: Current Issues*, edited by Effie-Fotini Athanassopoulos and LuAnn Wandsnider, Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2004. https://doi.org/10.9783/9781934536285.183.

Gregory, Timothy E. "Contrasting Impressions of Land Use in Early Modern Greece: The Eastern Corinthia and Kythera." In *Between Venice and Istanbul: Colonial Landscapes in Early Modern Greece*, edited by Siriol Davies and J. L. Davis, 40:173–98. Hesperia Supplements, 2007. https://www.jstor.org/stable/20066771.

Kourelis, Kostis, and David K. Pettegrew. "Washingtonia: An American Refugee Camp in Revolutionary Greece." In *The Greek Revolution (1821–1829) Through American Eyes. A Bicentennial Traveling and Online Exhibition*, edited by Tom Papademetriou and Nicholas Ganson. 2021. https://www.greekrevolution.org/essays/washingtonia-kourelis-pettegrew/

Pettegrew, David K., and William R. Caraher. "Life in Abandonment: The Village of Lakka Skoutara, Corinthia." In *Deserted Villages: Perspectives from the Eastern Mediterranean*, edited by Rebecca Seifried and Deborah Brown Stewart, 269–315. Grand Forks, ND: The Digital Press at The University of North Dakota, 2021. https://doi.org/10.31356/dpb019.

Tzortzopoulou-Gregory, Lita. "Remembering and Forgetting: The Relationship Between Memory and the Abandonment of Graves in Nineteenth- and Twentieth-Century Greek Cemeteries." *International Journal of Historical Archaeology* 14.2 (2010): 285–301. https://www.jstor.org/stable/41719791.

———. "Cemeteries in the Countryside: An Archaeological Investigation of the Modern Mortuary Landscape in the Eastern Corinthia and Northern Kythera." In *Archaeology and History in Roman, Medieval and Post-Medieval Greece*, edited by William R. Caraher, Linda Jones Hall, and R. Scott Moore, 307–44. Burlington, VT: Ashgate Publishing Company, 2008. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315262277-29/cemeteries-countryside-archaeological-investigation-modern-mortuary-landscape-eastern-corinthia-northern-kythera.

———. "Commemoration and Neglect in Modern Greek Consciousness: The Search for Identity in the Mortuary Landscape of Rural Greece. An Archaeological Study of Cemeteries in the Eastern Korinthia and Northern Kythera, Greece." Ph.D., La Trobe University, 2008.

Tzortzopoulou-Gregory, Lita, and Joseph L. Rife. "Epilogue: Kyras Vrysi, Ayios Ioannis Prodromos, and Its Cemetery." In *Isthmia: Excavations Volume IX, The Roman and Byzantine Graves and Human Remains*, 146–52. Princeton: American School of Classical Studies at Athens, 2012.

Appendix II
EKAS Data Fields

This appendix describes and defines data fields of the Eastern Korinthia Archaeological Survey project published at Open Context. The goal of this appendix is to encourage data reuse and exploration in two different ways.

One way that the appendix encourages data reuse is by making available to the analyst a fuller description of the tables and their data fields. Going beyond the summary of Chapter 7, I will define more complete field definitions and highlight the particular data fields that an analyst may use to join data tables and geospatial files. These online datasets include both data tables and shapefiles: Discovery Unit Data, Localized Cultural Anomalies Data, Finds Data, Geomorphology Data, and GIS Shapefiles. Analysts may download data tables from the EKAS Linked Media page and determine relevant fields of interest by combing through the following list, but they must recognize that data tables downloaded through the EKAS Linked Media page are static files uploaded in 2021 and may not represent the most up-to-date versions.[1]

The appendix also encourages exploration of datasets available at Open Context by providing links to data fields online. By following the links labeled "[Explore Data]" or "[Search Data]" at the end of each field description, the user may search text and comment fields, aggregate standard data fields, and/or visualize information associated with particular fields. In this respect, I aim to provide a shortcut to take the reader directly to aggregations of particular field data. The user may browse the objects associated with these fields, drill into sub-categories, or apply additional filters to limit the scope according to periods, dates, and method.

This appendix is designed to complement the narrative overview of project datasets (Ch. 7) and the practical guide to data reuse (Ch. 8). Anyone who plans to explore or reuse online data should consult all of these documents together.

II.1. General Data Fields used by Open Context

Open Context assigns a number of data fields to records that appear in every EKAS data table at the site. The user who downloads tables will see about 16 fields that appear regularly.

- **Item URI:** The Uniform Resource Identifier for the item, a unique value assigned to each record in a table. In the case of Discovery Unit tables, the analyst can use this field to join data from the same unit.

- **Item Label:** A convenient label for each item record. Typically refers to the name of the survey unit, such as Discovery Unit, Zone, LOCA, or LOCA grid square. In the case of the *Finds Data*, the item label is the object identification number. In general, item labels are not guaranteed to be unique in all of Open Context, but EKAS item labels are unique within the EKAS project.

- **Persistent ID (ARK):** Archival Resource Key, another unique persistent identifier for a record in a table.

- **Item Category:** The class to which an item belongs. Possible values include Object, Survey Unit, Square, and Region.

- **Project Label:** A name label for the Project URI. Value is always "The Eastern Korinthia Archaeological Survey".

- **Project URI:** The Uniform Resource Identifier for the project, a unique value assigned to the archaeological project at Open Context. Value is always https://n2t.net/ark:/28722/k25d97c30.

- **Item Context URI:** The Uniform Resource Identifier for the archaeological context of an item. Value is variable. URL points to either survey unit or toponym. The analyst can use this field to join data of different tables from the same context.

- **Item Published Date:** The date of the publication of the item.

- **Latitude (WGS-84):** The latitude of the object based on the centroid of its associated polygon feature.

- **Longitude (WGS-84):** The longitude of the object based on the centroid of its associated polygon feature.

- **Geospatial Inference:** A description of the source of geospatial data. If an item has its own spatial data, it has a value of "Given for: {Item Label}" (e.g., LOCA 9001 in the *LOCAs Data Table* has the value "Given for: LOCA 9001"). If a record lacks geospatial definitions, a value is assigned based on inferences from associated context. Value will be: "Inferred from: {Item Label}" (e.g., an artifact in the *Finds Data Table* that is associated with Discovery Unit 1 has the value "Inferred from: DU 1".

- **Context (1):** Spatial entity that contains the item. Context (1) refers to continent. Value of Context (1) is always "Europe" for EKAS data.

- **Context (2):** Spatial entity that contains the item. Context (2) refers to country. Value of Context (2) is always "Greece" for EKAS data.

- **Context (3):** Spatial entity that contains the item. Context (3) refers to region. Value of Context (3) is always "Corinthia" for EKAS data.

- **Context (4):** Spatial entity that contains the item. Context (4) refers to project region. Value of Context (4) is always "EKAS Region" for EKAS data.

- **Context (5):** Spatial entity that contains the item. Context (5) refers to toponym. Value of Context (5) is variable.

- **Authors and Contributors:** Authors who made digital resource available. Value is always David K. Pettegrew, Timothy E. Gregory, Daniel J. Pullen, Richard Rothaus, and Thomas F. Tartaron.

II.2. Discovery Unit Data

The Discovery Unit form was the primary medium for collecting data systematically across the survey territory. Because the DU form contained so many different data fields, I divided the Units data into four tables according to kind: *Location Data* (information locating unit in space and time); *Environmental Data* (environmental attributes of the unit); *Procedure-Counts Data* (nature of method and data collection and artifacts counted); and *Features* (features observed and described in survey). At Open Context, one will see the data of these tables split between a series of tabs for each survey unit (example: Discovery Unit 38). These datasets contain all the different kinds of survey units except for LOCAs and Geomorphological Units. Information about artifact types and chronology is not included: the viewer should consult the *Finds Data* to review artifacts identified for each survey unit and LOCAs. The tables below are available for download as static CSV files at the EKAS Linked Media Page or can be explored as dynamic interlinked data at Open Context.

II.2.1. Location Data

The *Location Data* contains information originally recorded on the first page of the Discovery Unit form.

DOI: https://doi.org/10.6078/M70K26PF

- **Discovery-Unit ID:** The identifying number of the survey unit. This field joins to Discovery-Unit field in other Units tables; Survey-Unit field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1); and DU field in the *Discovery Units GIS* (https://n2t.net/ark:/28722/k2df72g4h) shapefile and *Extensive Units GIS* (https://n2t.net/ark:/28722/k2j67s87s) shapefile. [Explore Data: https://n2t.net/ark:/28722/k2ws93j2d]

- **Class:** The kind of survey unit according to survey procedure and collection record. Classes include standard collection and six non-standard forms of collection. Some classes were recorded on original survey forms; others were added later for analytical purposes. [Explore Data: https://n2t.net/ark:/28722/k21g13s34]

- **Standard:** Unit surveyed in standard ways with comprehensive data collection. A standard unit is a typical Discovery Unit (n=1287). [Explore Data: https://n2t.net/ark:/28722/k27p9f11d]

- **Counts:** Unit surveyed in standard ways with comprehensive data collection, including artifact counts, but without associated finds data. May be useful for creating density analysis but it cannot be linked to artifact types, periods, or functions (n=51). [Explore Data: https://n2t.net/ark:/28722/k2qn6jz3k]

- **Features:** Unit of data collection in which teams collected information about features but did not count or collect artifacts (n=5). [Explore Data: https://n2t.net/ark:/28722/k2g73tq8q]

- **Grab:** Unit of data collection in which teams collected artifacts through grab samples but did not count objects. Grab units add chronological resolution (n=1). [Explore Data: https://n2t.net/ark:/28722/k2m04jj0h]

- **Revisit-Grab:** Unit of data collection in which teams revisited one or more previously surveyed Discovery Unit to collect additional information through grab samples. Revisit-grab units add chronological resolution (n=19). [Explore Data: https://n2t.net/ark:/28722/k2vd78r5r]

- **Experimental:** Units carried out to test and validate the project's procedures. All experimental units resulted in counts and collection of objects but in some cases used different collection strategies such as total collection (n=21). [Explore Data: https://n2t.net/ark:/28722/k23x8q665]

- **Extensive:** Units surveyed by the Extensive Survey Team using variable procedure but usually on a larger scale than standard survey units. [Explore Data: https://n2t.net/ark:/28722/k20580d0r]

- **Date:** Date when survey took place. [Explore Data: https://n2t.net/ark:/28722/k2571tk7w]

- **Team-Leader:** Name of the team leader, who was also often the form's recorder.

- **Topo-Map:** The number of the map associated with the survey unit within the 1:5000 map series produced by the Hellenic Military Geographical Service. [Explore Data: https://n2t.net/ark:/28722/k2902jd1n]

- **Toponym:** Local name for the district of the survey unit, usually taken from topographic maps or local informants. [Search Data: https://n2t.net/ark:/28722/k25d97d8v]

- **Toponym-Alt:** Secondary name for the district of the survey unit. [Search Data: https://n2t.net/ark:/28722/k2dr3863h]

- **Northing:** The UTM y coordinate of the centroid of the survey unit calculated through ArcGIS. [Explore Data: https://n2t.net/ark:/28722/k2jh4007n]

- **Easting:** The UTM x coordinate of the centroid of the survey unit calculated through ArcGIS. [Explore Data: https://n2t.net/ark:/28722/k2p84pt3k]

- **Elevation:** The elevation of the center point of the survey unit in meters above sea level. Taken from the 1:5,000 topographic maps produced by the Hellenic Military Geographical Service. [Explore Data: https://n2t.net/ark:/28722/k2t15dm86]

- **Area:** The area of the survey unit in square meters calculated through ArcGIS. Not an original field of data collection but added as an aid to analysis. [Explore Data: https://n2t.net/ark:/28722/k2xp7f19q]

- **Description:** Qualitative long-text description of the character, location, and identifying attributes of survey unit as well as information about how to access the unit. [Search Data: https://n2t.net/ark:/28722/k22f84p5s]

- **MBG-Length:** A minimum bounding geometry field calculated through ArcGIS to provide an estimate of the length of the survey unit. MBG-Length is the greatest distance between two vertices of a convex hull. Not an original field of data collection. [Explore Data: https://n2t.net/ark:/28722/k2668vg82]

- **MBG-Width:** A minimum bounding geometry field calculated through ArcGIS to provide an estimate of the width of the survey unit. MBG-Width is the least distance between two vertices of a convex hull. Not an original field of data collection. [Explore Data: https://n2t.net/ark:/28722/k29z9k90j]

- **Toponym (Linked):** Local name for the district of the survey unit. Indexed, structured, and linked. [Explore Data: https://n2t.net/ark:/28722/k25h7z49q]

II.2.2. Environmental Data

The Discovery Units *Environmental Data* contains information originally recorded on the second page of the DU form. For land cover fields recording presence or absence of a type of land cover, a "True" indicates a positive value (presence), "False" indicates a negative value (absence). For land use fields recording whether a unit shows evidence for a specific kind of human activity, a "True" indicates Yes and a "False" indicates No.

DOI: https://doi.org/10.6078/M72F7KJB

- **Discovery-Unit ID:** The identifying number of the survey unit. This field joins with Discovery-Unit ID field in other Units tables; Survey-Unit field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1); and DU field in the *Discovery Units GIS* (https://n2t.net/ark:/28722/k2df72g4h) shapefile and *Extensive Units GIS* (https://n2t.net/ark:/28722/k2j67s87s) shapefile. [Explore Data: https://n2t.net/ark:/28722/k2ws93j2d]

- **Class:** The character of the survey unit. See detailed description above for the *Location Data Table*.

- **Geomorph Unit:** The number of the primary Geomorphic Unit associated with the survey unit. This number joins with the Geomorph-Unit field of the Geomorphology table. [Explore Data: https://n2t.net/ark:/28722/k2c259n0v]

- **Land Cover, Coniferous-Forest:** A land cover field indicating presence/absence of coniferous forest. [Explore Data: https://n2t.net/ark:/28722/k2gt61f4p]

- **Land Cover, Evergreen-Forest:** A land cover field indicating presence/absence of evergreen forest. [Explore Data: https://n2t.net/ark:/28722/k2320c126]

- **Land Cover, Maquis:** A land cover field indicating presence/absence of maquis. [Explore Data: https://n2t.net/ark:/28722/k26t12t6m]

- **Land Cover, Phrygana:** A land cover field indicating presence/absence of phrygana. [Explore Data: https://n2t.net/ark:/28722/k2bg3379d]
- **Land Cover, Deciduous:** A land cover field indicating presence/absence of deciduous trees. [Explore Data: https://n2t.net/ark:/28722/k2g73t229]
- **Land Cover, Pseudo-Steppe:** A land cover field indicating presence/absence of pseudo-steppe. [Explore Data: https://n2t.net/ark:/28722/k2m04hv5j]
- **Land Cover, Other:** A land cover field indicating presence/absence of other kinds of native land cover beside coniferous forest, evergreen forest, maquis, phrygana, mixed deciduous, pseudo-steppe, chasmophyte, or coastal vegetation. [Explore Data: https://n2t.net/ark:/28722/k2086p384]
- **Land Cover, Weeds:** A land cover field indicating presence/absence of weeds. [Explore Data: https://n2t.net/ark:/28722/k2417cx10]
- **Land Cover, Grain:** A land cover field indicating presence/absence of standing grain. [Explore Data: https://n2t.net/ark:/28722/k27p9db5z]
- **Land Cover, Grain-Stubble:** A land cover field indicating presence/absence of grain stubble. [Explore Data: https://n2t.net/ark:/28722/k2cg04466]
- **Land Cover, Kalamboki:** A land cover field indicating presence/absence of corn (kalamboki). [Explore Data: https://n2t.net/ark:/28722/k2h70tx8k]
- **Land Cover, Small-Leafed-Crops:** A land cover field indicating presence/absence of small-leafed crops. [Explore Data: https://n2t.net/ark:/28722/k2n01jr3t]
- **Land Cover, Broad-Leafed-Crops:** A land cover field indicating presence/absence of broad-leafed crops. [Explore Data: https://n2t.net/ark:/28722/k2rr28j84]
- **Land Cover, Other-Crops:** A land cover field indicating presence/absence of indeterminate crops. [Explore Data: https://n2t.net/ark:/28722/k2wh30c3c]

- **Land Cover, Grapes:** A land cover field indicating presence/absence of vines and grapes. [Explore Data: https://n2t.net/ark:/28722/k21550m51]
- **Land Cover, Almonds:** A land cover field indicating presence/absence of almond trees. [Explore Data: https://n2t.net/ark:/28722/k24x5qd9g]
- **Land Cover, Apricot:** A land cover field indicating presence/absence of apricot trees. [Explore Data: https://n2t.net/ark:/28722/k28p6f718]
- **Land Cover, Citrus:** A land cover field indicating presence/absence of orange or lemon trees. [Explore Data: https://n2t.net/ark:/28722/k2df7514x]
- **Land Cover, Olives:** A land cover field indicating presence/absence of olive trees. [Explore Data: https://n2t.net/ark:/28722/k2j67vt88]
- **Olive Circumference Minimum:** Minimum circumference of the smallest olive tree in a unit, measured in centimeters. [Explore Data: https://n2t.net/ark:/28722/k2nz8kn4p]
- **Olive Circumference Maximum:** Maximum circumference of the largest olive tree in a unit, measured in centimeters. [Explore Data: https://n2t.net/ark:/28722/k2rv1006b]
- **Land Cover, Other-Orchard:** A land cover field indicating presence/absence of other kind of orchard or grove. [Explore Data: https://n2t.net/ark:/28722/k2sq99f99]
- **Land Cover, Comments:** Qualitative long-text description of land cover and visibility. An optional field for teams to strengthen description of land cover or visibility. [Search Data: https://n2t.net/ark:/28722/k2xd19w0w]
- **Soil-Plowed:** An artifact visibility field indicating presence/absence of plowed soil conditions. [Explore Data: https://n2t.net/ark:/28722/k22521h58]
- **Soil-Compaction:** An artifact visibility field indicating the character of compaction of soil. Possible values include "None" (no visible soil), "Compacted," "Loose," and "Mixed" (variable conditions). Units missing data for this field list value as "Unrecorded." [Explore Data: https://n2t.net/ark:/28722/k25x2r987]

- **Sherd-Crusting:** An artifact visibility field indicating the degree of limestone encrustation of sherds. Possible values include "None," "Light," and "Heavy." Units with no identified artifacts list values as "No Artifacts," while units missing data for this field list value as "Unrecorded." [Explore Data: https://n2t.net/ark:/28722/k29p3g41h]

- **Clast:** An artifact visibility field indicating the surface clast composition, i.e., the types of material present on soil surfaces in addition to artifacts. Possible values include "Rock," "Organic" (e.g., leaves), "Other," "Rock-Organic" (mixed clasts), "Rock-Organic-Other" (mixed clasts), and "Rock-Other" (mixed clasts). Units missing data for this field list value as "Unrecorded." [Explore Data: https://n2t.net/ark:/28722/k2543479t]

- **Clast-Size:** An artifact visibility field indicating the typical size of material present on soil surfaces in addition to artifacts. Values measured on a sliding size scale from boulder (>300 mm) to cobble (300–75 mm) to coarse gravel (75–19 mm) to fine gravel (<19 mm) to sand (<5 mm). Possible values include "Boulder," "Cobble," "CoarseGravel," "FineGravel," and "Sand," as well as ranges for units where walkers checked more than one box: "Boulder-Cobble," "Boulder-Gravel," "Cobble-Gravel," and "Gravel-Sand. Units missing data for this field list value as "Unrecorded." [Explore Data: https://n2t.net/ark:/28722/k2ff45x6q]

- **Disturbance:** An artifact visibility field estimating the amount of visual disturbance on the soil surface created by different clasts. Values include "None," "Light," "Moderate," and "Heavy." Units missing data for this field list value as "Unrecorded." [Explore Data: https://n2t.net/ark:/28722/k2k64wr1k]

- **Irrigation:** An artifact visibility field indicating the kind of irrigation present that could affect artifact identification. Values include "None," "Local," and "General." Units missing data for this field list value as "Unrecorded." Local irrigation refers to water fed directly via hoses to individual plants and localized areas; general irrigation indicates the use of broader irrigation strategies, such as spraying. [Explore Data: https://n2t.net/ark:/28722/k2pz5mj5d]

- **Percent-Visible:** An artifact visibility field estimating the average visibility of the surface of the area walked. Recorded as a percentile in ten-percent increments from 0 to 100. [Explore Data: https://n2t.net/ark:/28722/k2tm7mz79]
- **Land Use, Residential:** A land use field indicating use of unit for residential purposes, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k2zc8bs12]
- **Land Use, Agricultural:** A land use field indicating use of unit for agricultural purposes, recorded as a yes /no value. [Explore Data: https://n2t.net/ark:/28722/k23492d5z]
- **Land Use, Res-Agr:** A land use field indicating use of unit for mixed residential and agricultural purposes, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k26w9s67f]
- **Land Use, Transportation:** A land use field indicating use of unit for transportation purposes, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k2m61xn29]
- **Land Use, Quarry:** A land use field indicating use of unit as a quarry, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k2qv3z21v]
- **Land Use, Dump:** A land use field indicating use of unit as a dump, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k2vm4nv5k]
- **Land Use, Other:** A land use field indicating use of unit for other ends, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k20c5cg9g]
- **Land Use, None:** A land use field indicating the absence of evidence for human land use, recorded as a yes/no value. [Explore Data: https://n2t.net/ark:/28722/k24463937]
- **Land Use, Comments:** Qualitative long-text description of land use. An optional field for teams to record additional description of land uses. [Search Data: https://n2t.net/ark:/28722/k27w6t37p]

II.2.3. Procedure-Counts Data

The *Procedure-Counts Data* contains information originally recorded on the first page of the Discovery Unit form, plus artifact density data created to support analysis.

DOI: https://doi.org/10.6078/M7P8492G

- **Discovery-Unit ID:** The identifying number of the survey unit. This number joins with Discovery-Unit ID field in other Units tables; Survey-Unit field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1); and DU field in the *Discovery Units GIS* (https://n2t.net/ark:/28722/k2df72g4h) shapefile and *Extensive Units GIS* (https://n2t.net/ark:/28722/k2j67s87s) shapefile. [Explore Data: https://n2t.net/ark:/28722/k2ws93j2d]

- **Class:** The character of the survey unit. See detailed description above for *Location Data Table*. [Explore Data: https://n2t.net/ark:/28722/k21g13s34]

- **Date:** Date when survey took place. [Explore Data: https://n2t.net/ark:/28722/k2571tk7w]

- **Start-Time:** Time of day when walking began. [Search Data: https://opencontext.org/predicates/c42e75a3-db6d-4a65-930c-d76df8c933fc]

- **Stop-Time:** Time of day when walking ended. [Search Data: https://opencontext.org/predicates/529d277a-a6f1-4942-b7d1-e397e38643c5]

- **Duration:** Duration of walking time, recorded in minutes, calculated by subtracting start-time value from stop-time value. [Explore Data: https://n2t.net/ark:/28722/k2fr09474]

- **Spacing:** Distance between walkers, recorded in meters. [Explore Data: https://opencontext.org/predicates/4454f5f9-125e-4714-994c-49571a6f7688]

- **Bearing:** Compass direction by which surveyors walked survey unit, recorded in degrees East of North. Value ranges between 1 and 360.

- **Direction-From:** Cardinal or intercardinal direction from which walkers lined up. [Explore Data: https://opencontext.org/predicates/e7c29ef6-9609-418a-8d87-af9add9b6cdc]

- **Direction-To:** Cardinal or intercardinal direction to which walkers lined up. [Explore Data: https://opencontext.org/predicates/a0aa5696-4a1c-441e-8780-6cf0bf550799]

- **Area:** The area of the survey unit in square meters calculated through ArcGIS. Not an original field of data collection but added as an aid to analysis. [Explore Data: https://n2t.net/ark:/28722/k2xp7f19q]

- **Transect-Count:** Count of the number of distinct transects walked in the unit. Not an original field of data collection but added for analytical purposes. [Explore Data: https://opencontext.org/predicates/31b9a74c-1d36-4bd9-b26f-842165bd856e]

- **Comments Procedure:** Qualitative long-text comments on method. An optional field for teams to record more detailed description of procedures. [Search Data: https://opencontext.org/predicates/2efaa90e-dea0-47a7-a426-464b09e10373]

- **Sherds Total:** Total count of pottery sherds in unit based on sum of sherds counted in individual swaths. [Explore Data: https://opencontext.org/predicates/6feb9fd8-1e93-4b35-ad69-1818722d6b3c]

- **Sherds Density:** Putative density of total sherds in unit per hectare per area walked. This value is calculated by calibrating for variable walker spacing (but not differences in surface visibility) according to the following formula: 1) the raw density is calculated by dividing the value of Sherds Total field by value of Area field; 2) the raw density is then calibrated according to a multiplier factor based on the percentage of unit actually surveyed;[2] and 3) that calibrated density is multiplied by 10,000 to create a whole number density figure per hectare. This final value is called the putative total density. This is not an original field of data collection but was added for analytical purposes. [Explore Data: https://opencontext.org/predicates/f4c35b4f-faad-4acd-acb3-5718b99b9471]

- **Tiles Total:** Total count of ceramic tile fragments in unit based on sum of tile counted in individual swaths. [Explore Data: https://opencontext.org/predicates/01c2de5c-0a3e-4caf-8a6d-f016151e34cb]

- **Tiles Density:** Putative density of total tiles in unit per hectare per area walked. This value is calculated by calibrating for variable walker spacing (but not differences in surface visibility) according to the following formula: 1) the raw density is calculated by dividing the value of Tiles Total field by value of Area field; 2) the raw density is then calibrated according to a multiplier factor based on the percentage of unit actually surveyed; and 3) that calibrated density is multiplied by 10,000 to create a whole number density figure per hectare. This final value is called the putative total density. This is not an original field of data collection but was added for analytical purposes. [Explore Data: https://opencontext.org/predicates/0256ec33-682b-4377-ae8b-24c2df8febc2]

- **Lithics Total:** Total count of lithic artifacts in unit based on sum of lithics counted in individual swaths. Lithic artifacts here are defined narrowly as chipped flint and chert objects such as cores, flakes, debitage, blades, and tools. [Explore Data: https://opencontext.org/predicates/e702b94e-1745-408d-89db-8702674675f0]

- **Lithics Density:** Putative density of total lithics in unit per hectare per area walked. This value is calculated by calibrating for variable walker spacing (but not differences in surface visibility) according to the following formula: 1) the raw density is calculated by dividing the value of Lithics Total field by value of Area field; 2) the raw density is then calibrated according to a multiplier factor based on the percentage of unit actually surveyed; and 3) that calibrated density is multiplied by 10,000 to create a whole number density figure per hectare. This final value is called the putative total density. This is not an original field of data collection but was added for analytical purposes. [Explore Data: https://opencontext.org/predicates/c3b48a97-680d-41ce-890e-06fceb6b5542]

- **Other Total:** Total count of other kinds of objects in unit based on sum of other objects counted in individual swaths. The Other artifact category field includes objects such as glass, metal, and ground stone. [Explore Data: https://opencontext.org/predicates/26dd54fd-9f30-4692-918b-b797f2c158f6]

- **Other Density:** Putative density of other artifacts in unit per hectare per area walked. This value is calculated by calibrating for variable walker spacing (but not differences in surface visibility) according to the following formula: 1) the raw density is calculated by dividing the value of Other Total field by value of Area field; 2) the raw density is then calibrated according to a multiplier factor based on the percentage of unit actually surveyed; and 3) that calibrated density is multiplied by 10,000 to create a whole number density figure per hectare. This final value is called the putative total density. This is not an original field of data collection but was added for analytical purposes. [Explore Data: https://opencontext.org/predicates/4224cc6a-2810-4cd4-8e89-06e6e3d9f567]

- **Comments Artifacts:** Qualitative long-text comments field reserved for observations on artifacts in unit or individual swaths. [Search Data: https://opencontext.org/predicates/1c03ee0c-3862-4408-a9b0-111557ffd92]

- **Total Count:** Total sum of all artifacts counted in the survey unit: a combination of totals of sherds, tiles, lithics, and other. [Explore Data: https://opencontext.org/predicates/93f08317-7fd1-4356-b371-501993d19f84a]

- **Total Density:** Putative density of total count of artifacts in unit per hectare per area walked. This value is calculated by calibrating for variable walker spacing (but not differences in surface visibility) according to the following formula: 1) the raw density is calculated by dividing the value of Total Count field by value of Area field; 2) the raw density is then calibrated according to a multiplier factor based on the percentage of unit actually surveyed; and 3) that calibrated density is multiplied by 10,000 to create a whole number density figure per hectare. This final value is called the putative total density. This is not an original field of data collection but was added for analytical purposes. [Explore Data: https://opencontext.org/predicates/2a4f2dd6-c641-4dea-b827-d3dd50ec8aff]

- **Total Read:** The total number of objects read by the processing team. This value is generated from a count of the individual finds collected during survey and recorded in the *Finds Data Table*. Not an original field of data collection but added for analytical purposes. [Explore Data: https://opencontext.org/predicates/eab0624b-658b-43fe-bc87-6861409b3eb4]

- **P1Init:** The initials of the walker at the start of the walker array.

- **P1Sherds:** The potsherds counted in the first swath of the unit. [Explore Data: https://opencontext.org/predicates/bfe189db-7119-4596-adb4-9fcbb72d3748]
- **P1Tiles:** The ceramic tile fragments counted in the first swath of the unit. [Explore Data: https://opencontext.org/predicates/0af41444-a289-4672-b810-319429077c04]
- **P1Lithics:** The lithic objects counted in the first swath of the unit. [Explore Data: https://opencontext.org/predicates/00d15400-d778-4196-8bb6-045028a9e11c]
- **P1Other:** The other objects counted in the first swath of the unit. [Explore Data: https://opencontext.org/predicates/7cb7cf57-c5d8-4dea-94e2-137a2f41f26a]
- [The five fields above are repeated according to the number of walkers in the survey unit, with subsequent walker initials and counts following the sequence of P2, P3, P4, ...P30]

II.2.4. Features Data

The *Features Data* describes premodern or modern features originally recorded on the third page of the Discovery Unit form.[3] The table includes 40 different feature types categorized by functional class. A positive value for any individual field indicates the presence of that feature in the unit. The values correspond to the estimated dating of the feature, where "PM" = premodern period, "M" = modern period, "I" = indeterminate age, and "B" = both premodern and modern features of a class.

DOI: https://doi.org/10.6078/M7XP732F

- **Discovery-Unit ID:** The identifying number of the survey unit. This field joins with Discovery-Unit ID field in other Units tables; Survey-Unit field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1); and DU field in the *Discovery Units GIS* (https://n2t.net/ark:/28722/k2df72g4h) shapefile and *Extensive Units GIS* (https://n2t.net/ark:/28722/k2j67s87s) shapefile. [Explore Data: https://n2t.net/ark:/28722/k2ws93j2d]
- **Agricultural, Aloni:** Presence/absence of threshing floor. [Explore Data: https://n2t.net/ark:/28722/k20v8wg9n]
- **Agricultural, Animal Pen:** Presence/absence of animal pen. [Explore Data: https://n2t.net/ark:/28722/k24m9m93d]

- **Agricultural, Barrel:** Presence/absence of barrel. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k28d0b36m]

- **Agricultural, Beehive:** Presence/absence of beehive. Not an original field of features form but added in 2020 from data recorded from comments data. [Explore Data: https://n2t.net/ark:/28722/k2d511w8c]

- **Agricultural, Campfire:** Presence/absence of campfire or ash circle. [Explore Data: https://n2t.net/ark:/28722/k2hx1rq4d]

- **Agricultural, Channel:** Presence/absence of water channel. [Explore Data: https://n2t.net/ark:/28722/k2np2gj04]

- **Agricultural, Check-Dam:** Presence/absence of check dam. [Explore Data: https://n2t.net/ark:/28722/k2sf36b5r]

- **Agricultural, Cistern:** Presence/absence of cistern. [Explore Data: https://n2t.net/ark:/28722/k2x356r5p]

- **Agricultural, Equipment:** Presence/absence of agricultural equipment and facilities. [Explore Data: https://n2t.net/ark:/28722/k21v5xd00]

- **Agricultural, Greenhouse:** Presence/absence of greenhouse. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k25m6n644]

- **Agricultural, Irrigation:** Presence/absence of irrigation materials or equipment. Not an original field of features form but added in 2020 from comments data. Cf. also Irrigation field of the *Environment Data*. [Explore Data: https://n2t.net/ark:/28722/k29c7c07s]

- **Agricultural, Outbuilding:** Presence/absence of agricultural outbuilding. [Explore Data: https://n2t.net/ark:/28722/k2f482t2m]

- **Agricultural, Resin-Collector:** Presence/absence of resin collector. [Explore Data: https://n2t.net/ark:/28722/k24m9m94w]

- **Agricultural, Terrace:** Presence/absence of agricultural terrace. This field consolidates four categories used in original form: walled terrace, bulldozed terrace, collapsed terrace, and walls terrace. [Explore Data: https://n2t.net/ark:/28722/k2jw8sm9h]
- **Agricultural, Well:** Presence/absence of well. [Explore Data: https://n2t.net/ark:/28722/k2pn9hf2s]
- **Architectural, General:** Presence/absence of general architecture. This was a generic category for other kinds of architectural remains that did not correspond to a more precise category. [Explore Data: https://n2t.net/ark:/28722/k22v2z894]
- **Architectural, Basin:** Presence/absence of basin. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2g16d98f]
- **Architectural, Bridge:** Presence/absence of bridge. [Explore Data: https://n2t.net/ark:/28722/k26m3p32d]
- **Architectural, Cave-Rockshelter:** Presence/absence of human-used cave or rockshelter. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2bc4cw7m]
- **Architectural, Cut-Stone:** Presence/absence of architectural cut stone. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2g453q2v]
- **Architectural, Fence:** Presence/absence of fence. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2b85ph49]
- **Architectural, Fieldwall:** Presence/absence of fieldwall. [Explore Data: https://n2t.net/ark:/28722/k2kw5th69]
- **Architectural, Monumental:** Presence/absence of monumental architecture. [Explore Data: https://n2t.net/ark:/28722/k2qj7tx7q]

- **Architectural, Stone-Circle:** Presence/absence of stone circle. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2v98jr1g]

- **Architectural, Wall:** Presence/absence of other kind of wall. This was a generic category for non-specific kinds of walls. [Explore Data: https://n2t.net/ark:/28722/k20298c5c]

- **Domestic, House:** Presence/absence of domestic buildings. [Explore Data: https://n2t.net/ark:/28722/k2tb1hv28]

- **Domestic, Oven:** Presence/absence of oven. [Explore Data: https://n2t.net/ark:/28722/k2z327n6d]

- **Special Purpose, Burial:** Presence/absence of special purpose area: burial. [Explore Data: https://n2t.net/ark:/28722/k23v0057s]

- **Special Purpose, Church:** Presence/absence of special purpose area: ecclesiastical structure. [Explore Data: https://n2t.net/ark:/28722/k2cc1ds9t]

- **Special Purpose, Dump:** Presence/absence of special purpose area: dump. [Explore Data: https://n2t.net/ark:/28722/k27m0q034]. See also the Land Use, Dump field (https://n2t.net/ark:/28722/k2vm4nv5k) recorded for the Environmental Data.

- **Special Purpose, Electrical:** Presence/absence of special purpose area: electrical features. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2h424m3k]

- **Special Purpose, Military-Installation:** Presence/absence of special purpose area: military installation.

- **Special Purpose, Pit:** Presence/absence of special purpose area: pit. [Explore Data: https://n2t.net/ark:/28722/k2rj4vt8f]

- **Special Purpose, Quarry:** Presence/absence of special purpose area: quarry. Not an original field of features form but added in 2020 from comments data. Cf. the Disturbance-Modern and Land-Use fields of the Geomorphology table which also note observed quarrying in the GUs. [Explore Data: https://n2t.net/ark:/28722/k2w95kn1q]

- **Special Purpose, Stone-Pile:** Presence/absence of special purpose area: stone pile or cairn. Not an original field of features form but added in 2020 from comments data. [Explore Data: https://n2t.net/ark:/28722/k2126985m]

- **Transportation, Road:** Presence/absence of transportation feature: road, general. This is a field for generic roads not identified to the individual types listed below. [Explore Data: https://n2t.net/ark:/28722/k24t7130j]

- **Transportation, Road Paved:** Presence/absence of transportation feature: road, paved. [Explore Data: https://n2t.net/ark:/28722/k28k7qw3d]

- **Transportation, Road Trail:** Presence/absence of transportation feature: road, unbuilt trail. [Explore Data: https://n2t.net/ark:/28722/k26h4zq1n]

- **Transportation, Road Unpaved:** Presence/absence of transportation feature: road, unpaved. [Explore Data: https://n2t.net/ark:/28722/k2d79r966]

- **Other:** Presence/absence of other type of feature. [Explore Data: https://n2t.net/ark:/28722/k2j10g40h]

- **Comments Features:** Qualitative long-text field related to features. An optional field for teams to record more detailed description about cultural features observed in unit. [Search Data: https://n2t.net/ark:/28722/k2ns15x3f]

II.3. Localized Cultural Anomalies Data

Localized Cultural Anomalies were subjective interpretive categories used to denote places of special interest for further archaeological investigation and collection. EKAS published two datasets associated with these sites: 1) a general *LOCAs Data Table* that records information for all LOCAs identified by the survey and 2) a table recording counts data for twelve LOCAs investigated through gridded collection (*LOCAs-Grids Data Table*). These tables are available for download at the EKAS Linked Media Page at Open Context.

II.3.1. LOCAs Data

This *LOCAs Data* represents a consolidation and refinement of information originally collected across a number of tables. It is designed to give the viewer a general overview of the sites defined during the survey. The viewer interested in LOCA locations may join the data of this table to the related GIS file.

DOI: https://doi.org/10.6078/M7571947

- **Collection-Unit:** The identifying number of the Localized Cultural Anomaly. Values fall between 9001 and 9233. This field joins with Survey-Unit field in *Finds Data* (https://doi.org/10.6078/M7DR2SM1) and Unit field in the *Localized Cultural Anomalies (LOCA) GIS* (https://n2t.net/ark:/28722/k2sn0hh26) shapefile. [Explore Data: https://n2t.net/ark:/28722/k2vt22p44]

- **Name:** The name of the LOCA based on original designation but updated and revised during date refinement in 2020–2021. [Search Data: https://n2t.net/ark:/28722/k2805hj5s]

- **Materials-Observed:** Short-text qualitative description of types of material remains present. [Search Data: https://n2t.net/ark:/28722/k20g42x59]

- **Interpretation:** Short-text qualitative interpretation of LOCAs in terms of functional classes (e.g., settlement, sanctuary). [Search Data: https://n2t.net/ark:/28722/k2474sq92]

- **Period, Summary:** Main periods of interest and significance. "Diachronic" indicates Prehistoric–Modern. [Search Data: https://n2t.net/ark:/28722/k2cr67b84]

- **Period, Linked:** Main periods of interest and significance. Indexed, structured, and linked. [Explore Data: https://n2t.net/ark:/28722/k2f76sj4z]
- **Area:** The area of the investigative field of the LOCA recorded in square meters, calculated through ArcGIS. This does not correspond directly to an empirical definition of site size but represents the area of interest of archaeologists. [Explore Data: https://n2t.net/ark:/28722/k2xp7f19q]
- **Northing:** The UTM y coordinate of the centroid of the LOCA calculated through ArcGIS. [Explore Data: https://n2t.net/ark:/28722/k2jh4007n]
- **Easting:** The UTM x coordinate of the centroid of the LOCA calculated through ArcGIS. [Explore Data: https://n2t.net/ark:/28722/k2p84pt3k]
- **Topo-Map:** The number of the map associated with the LOCA within the 1:5000 map series produced by the Hellenic Military Geographical Service. [Explore Data: https://n2t.net/ark:/28722/k2902jd1n]
- **Elevation:** The elevation of the center point of the LOCA in meters above sea level. Taken from the 1:5,000 topographic maps produced by the Hellenic Military Geographical Service. [Explore Data: https://n2t.net/ark:/28722/k2t15dm86]
- **Toponym:** Local name for the district of the LOCA, usually taken from topographic maps or local informants. [Search Data: https://n2t.net/ark:/28722/k25d97d8v]
- **Toponym Secondary:** Additional names for the district of the survey unit. [Search Data: https://n2t.net/ark:/28722/k2hh6z511]
- **Toponym (Linked):** Local name for the district of the LOCA. Indexed, structured, and linked. [Explore Data: https://n2t.net/ark:/28722/k25h7z49q]
- **Description:** Qualitative long-text description of the LOCA. [Search Data: https://n2t.net/ark:/28722/k22f84p5s]
- **Investigation-Methods:** Qualitative list of methods of investigation used to examine LOCA. [Search Data: https://n2t.net/ark:/28722/k21c2df3q]

- **Grid Dimensions:** The grid / sub-unit dimensions (in meters) in LOCAs investigated through gridded collection.

- **Grid Unit-Size:** The grid / sub-unit size (in meters) in LOCAs investigated through gridded collection. A text field.

- **Grid Sample-Size-per-Square:** The approximate area of the grid / sub-unit intensively sampled in LOCAs investigated through gridded collection.

- **Grid Count-Units-Sampled:** The number of sub-units sampled in those LOCAs that were investigated through gridded collection. [Explore Data: https://n2t.net/ark:/28722/k21g13t42]

- **Grid Sampling-Strategy:** The collection strategy adopted for sampling the surface of a LOCA in those LOCAs that were investigated through gridded collection.

- **References:** EKAS publications relevant to individual LOCAs, updated through 2020.

II.3.2. LOCAs-Grids Data

The *LOCAs-Grids Data* represent the results of investigation of a dozen LOCAs through more intensive sub-unit collections, usually carried out by gridding part of the LOCA and sampling sub-units with more intensive collection strategies. The datasets include original data collected from the sub-units, although it is important to note that it is not clear that the data was always collected consistently for all fields in the table. The data of this table may be joined to other datasets. To examine finds recorded for individual grid squares, the user join the GS-ID field in this table to the related Sub-Unit-ID field of the *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1). To join with GIS shape files, the user may join the GS-ID value in this table directly to the GS-ID value in the LOCAs-Grids GIS shapefile.[4]

DOI: https://doi.org/10.6078/M79021W0

- **GS-ID:** Unique identifier for each individual grid square. A combination of the LOCA unit and the sub-unit / grid square number. A decimal point at the end of the number (e.g., 9002_142.1 or 9002_142.2) typically indicates the same grid squares surveyed with multiple techniques. This field joins to GS_Number field in *Localized Cultural Anom-*

alies (LOCA) Grid Unit GIS (https://n2t.net/ark:/28722/k2xd1795v) shapefile and Sub-Unit-ID field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1).

- **LOCA:** The identifying number of the Localized Cultural Anomaly in which gridded survey was carried out.
- **Sub-Unit:** Individual grid square number within LOCA grid.
- **FID:** Feature ID for LOCA Grid, generated automatically by ArcGIS in creating new shapefile. Joins to FID values in LOCA Grid GIS Shapefile.
- **X Centroid:** The UTM x coordinate of the centroid of the LOCA calculated through ArcGIS. [Explore Data: https://n2t.net/ark:/28722/k22f84q76]
- **Y Centroid:** The UTM y coordinate of the centroid of the LOCA calculated through ArcGIS. [Explore Data: https://n2t.net/ark:/28722/k2668vj1k]
- **Area:** The area of the grid in square meters calculated through ArcGIS.
- **Walker:** Initials of individual walkers who collected data from sub-unit.
- **Duration:** Length of time recorded in minutes over which data collection took place. This data field was not collected consistently. [Explore Data: https://n2t.net/ark:/28722/k2fr09474]
- **Chronotype Circle:** Indicates whether a grid square was investigated through a Chronotype Circle collection strategy, where value of "True" is Yes and "False" is No. [Explore Data: https://n2t.net/ark:/28722/k2kh10z1g]
- **Chronotype Square:** Indicates (Yes/No) whether a grid square was investigated through a Chronotype Square collection strategy, where value of "True" is Yes and "False" is No. [Explore Data: https://n2t.net/ark:/28722/k2q531c29]
- **Total Circle:** Indicates whether a grid square was investigated through a Total Circle collection strategy, where value of "True" is Yes and "False" is No. [Explore Data: https://n2t.net/ark:/28722/k2tx3r577]

- **Total Square:** Indicates whether a grid square was investigated through a Total Square collection strategy, where value of "True" is Yes and "False" is No. [Explore Data: https://n2t.net/ark:/28722/k2zp4g010]
- **Grab Sample:** Indicates whether a grid square was investigated through a Grab Sample collection strategy, where value of "True" is Yes and "False" is No. [Explore Data: https://n2t.net/ark:/28722/k23f55m6z]
- **Sherds Counted:** The number of potsherds counted in the sample. [Explore Data: https://n2t.net/ark:/28722/k2765wd97]
- **Sherds Collected:** The number of potsherds collected from the sample. [Explore Data: https://n2t.net/ark:/28722/k2bz6m73p]
- **Tiles Counted:** The number of ceramic tiles counted in the sample. [Explore Data: https://n2t.net/ark:/28722/k2gq7b189]
- **Tiles Collected:** The number of ceramic tiles collected from the sample. [Explore Data: https://n2t.net/ark:/28722/k2mc9bf7r]
- **Lithics Counted:** The number of lithic artifacts counted in the sample. [Explore Data: https://n2t.net/ark:/28722/k2r50282j]
- **Lithics Collected:** The number of lithic artifacts collected from the sample. [Explore Data: https://n2t.net/ark:/28722/k2wm1ps96]
- **Other Counted:** The number of other types of artifacts counted in the sample. [Explore Data: https://n2t.net/ark:/28722/k2vx0s27g]
- **Other Collected:** The number of other types of artifacts collected from the sample. [Explore Data: https://n2t.net/ark:/28722/k20p1gq22]
- **Comments:** Qualitative long-text comments related to the sample and finds from survey of LOCA sub-units. [Search Data: https://n2t.net/ark:/28722/k24f26h47]

II.4. Zones Data

The *Zones Data* presents fields relevant to the 60 zones created for the purpose of analysis in this work. Some 50 of those units are standard zones and the table includes a full set of relevant information such as their surface area, artifact density, surface visibility, and elevation. Another 10 of the zones are non-standard and the table lists only information about associated toponyms and surface area.

DOI: https://doi.org/10.6078/M71G0JDH

- **Zone:** The identifying number of the Zone, which joins to the Zone field in the *Zones Data Table* (https://doi.org/10.6078/M71G0JDH). Between 1 and 60. [Explore Data: https://n2t.net/ark:/28722/k2320cd43]
- **Name:** Unique name assigned to Zone during its creation based on local toponyms. [Search Data: https://n2t.net/ark:/28722/k2805hj5s]
- **Elevation-Min:** Lowest elevation within Zone in meters above sea level. [Explore Data: https://n2t.net/ark:/28722/k2k366q60]
- **Elevation-Max:** Highest elevation with Zone in meters above sea level. [Explore Data: https://n2t.net/ark:/28722/k29k4s41k]
- **Toponym:** Local name for the district of the Zone, based on the toponyms of the Discovery Units found within Zone. [Search Data: https://n2t.net/ark:/28722/k25d97d8v]
- **Toponym (Linked):** Local name for the region of the Zone. Indexed, structured, and linked. [Explore Data: https://n2t.net/ark:/28722/k25h7z49q]
- **Visibility-Average:** Average surface visibility of Zone based on raw average of the surface visibility of all Discovery Units within the Zone. [Explore Data: https://n2t.net/ark:/28722/k2sn0mf6g]
- **Visibility-Weighted:** Average weighted surface visibility of Zone based on weighted average of the surface visibility of all Discovery Units within the Zone. Discovery Units with greater area have greater weight in calculation. [Explore Data: https://n2t.net/ark:/28722/k2j395t8q]

- **Density-Weighted:** Average [Explore Data: https://n2t.net/ark:/28722/k2155107b]

- **Density-Visibility-Corrected:** [Explore Data: https://n2t.net/ark:/28722/k2rn3kj67]

- **Morphostratigraphy:** Morphostratigraphic elements of Zones, based on data collected for morphostrigraphy for each Geomorphic Units within each zone (see below). Field data represents long-text comments on the morphostrats of the zone. The field breaks down elements into relative percentages based on the areal coverage of survey units, for example, Zone 37: Alluvium (46%), Anthropogenic (26%), Colluvium (26%), and Colluvium-Anthro (3%).[5] [Search Data: https://n2t.net/ark:/28722/k2tx3rh7q]

- **Area:** The area of the Zone in square meters calculated through ArcGIS as an aid to analysis and comparison. [Explore Data: https://n2t.net/ark:/28722/k2xp7f19q]

II.5. Finds Data

The *Finds Data* presents all of the unique identifications of finds collected from all collection units including the various classes of Discovery Units as well as LOCAs. The records of this table are organized by a unique Object-ID. Note that the item number typically refers to a unique chronotype identified in the unit and sub-unit and may actually contain more than one example (hence, the quantity field is frequently greater than 1). In order to create joins to other tables, the dataset includes all survey units and LOCAs, even in cases where no finds were collected.

DOI: https://doi.org/10.6078/M7DR2SM1

- **Object-ID:** A unique ten-digit identifier for the item/batch of objects comprising a concatenation of Survey Unit number, Sub-Unit number, and Item Number. The first four digits correspond to a unit number ranging from 0001 (for Discovery Unit 1) to 9233 (for LOCA 9233). The next string of three digits corresponds to a sub-unit number in the case of experimental units or gridded LOCAs; the string is 000 in the majority of cases where no sub-units were used. The final string of three digits refers to the item-number. As one example, the unique Object-ID number 4005001908 refers to Experimental Unit number 4005, sub-unit 1 (001), and item-number 908; in this case, it corresponds to 15 Medium Coarse Ware body sherds dating to the broad Ancient Historic period.

- **Zone:** An analytical category added to create larger groupings of Discovery Units and analyze artifact data according to broader aggregation. Numbered 1–60. This field joins to Zone field in the *Zone GIS* (https://n2t.net/ark:/28722/k2pv6tk84) shapefile. [Explore Data: https://n2t.net/ark:/28722/k2xw4tv6h]

- **Survey-Unit:** The identifying number of the survey unit or LOCA between 1 and 9233. This field joins to Discovery-Unit ID field in Units tables and Collection-Unit field in *LOCAs Data Table* (https://doi.org/10.6078/M7571947).

- **Sub-Unit:** A sub-unit number, most commonly used for Experimental Units (4000 series units) and LOCAs (9000 series units). The value is 0 in units without sub-units.

- **Sub-Unit-ID:** A unique ID number of a grid square, assigned only for units with sub-unit values. This field joins to GS_Number field in the *Localized Cultural Anomalies (LOCA) Grid Unit GIS* (https://n2t.net/ark:/28722/k2xd1795v) shapefile and GS-ID field in *LOCAs-Grids Data Table* (https://doi.org/10.6078/M79021W0). [Search Data: https://n2t.net/ark:/28722/k22n5jh01]

- **Item-Number:** A number denoting unique chronotypes within the unit and sub-unit. The value is 0 for units / sub-units without objects.

- **Class:** The character of the survey unit. Classes include standard Discovery Units, six non-standard Discovery Units, and LOCAs. [Explore Data: https://n2t.net/ark:/28722/k21g13s34]

- **Collection-Strategy:** The type of artifact collection, typically Chronotype, but with varied values in Experimental Units and LOCAs. [Explore Data: https://n2t.net/ark:/28722/k2b288q5k]

- **Chronotype:** The name of the unique chronotype. Data at Open Context present chronotype hierarchies. See also the complete list of chronotypes (https://n2t.net/ark:/28722/k2h13fv29).[6] [Explore Data: https://n2t.net/ark:/28722/k20z7mv7z]

- **Extant-Part:** The part of the object preserved. For pottery, values typically are "Rim," "Base," "Handle," and "Body." For ceramic tiles and marble, values are "Edge" or "Fragment." Other material types (e.g., glass, metal) typically list extant part as "Fragment." "Intact" refers to objects that are wholly preserved or mostly preserved. [Explore Data: https://n2t.net/ark:/28722/k2kk9qb5r]

- **Extant-Part, Detailed:** A more detailed short-text description of the Extant-Part field. [Search Data: https://n2t.net/ark:/28722/k27d3969t]

- **Quantity:** The number of objects for the identified Chronotype and Extant-Part.

- **Material:** Material classes of identified objects. Possible values include "Bone/Shell," "Composite" (synthetic combinations of different material mostly used for modern objects such as constructional materials and brick), "Glass," "Metal," "Other," "Plastic," "Pottery" (including ceramic tiles), "Stone," and "Terracotta." [Explore Data: https://n2t.net/ark:/28722/k2qc0f48z]

- **Fabric:** The fabric class of the material, a field for Pottery or Composite Brick. Values include "Coarse," "Cooking," "Fine," "Medium-Coarse," "Pithos," "Semi-Fine," "Tile," and "Unknown." [Explore Data: https://n2t.net/ark:/28722/k2v414z0b]

- **Period, Summary:** Name of period to which chronotype dates. [Search Data: https://n2t.net/ark:/28722/k2cr67b84]

- **Period (Linked):** Name of period to which chronotype dates. Indexed, structured, and linked. [Explore Data: https://n2t.net/ark:/28722/k2f76sj4z]

- **Period-Dates:** Short-text description of the date of period, e.g., "31BCE-CE700."

- **Read-by:** The artifact analyst or analysts who identified the artifacts, listed according to the order of readings.

- **Date-Read:** Date objects were first read and identified. [Explore Data: https://n2t.net/ark:/28722/k2mk6r74h]

- **Location:** Current location of items: "Field" (for items left in survey unit) or "Isthmia" (for objects stored at the Isthmia Excavation House). [Explore Data: https://n2t.net/ark:/28722/k23j3w07b]

- **Photo-Status:** Field indicating presence or absence of digital photos of objects. [Explore Data: https://n2t.net/ark:/28722/k2c259m69]

- **Drawing-Status:** Field indicating whether illustrations were made or should be made of objects. [Explore Data: https://n2t.net/ark:/28722/k2794kt1p]

- **Comments:** Long-text qualitative comments about objects under study including especially information such as color, form, preservation, dimensions, comparanda, and processing notes. [Search Data: https://n2t.net/ark:/28722/k24f26h47]

II.6. Geomorphology Data

The *Geomorphology Data* contains information collected between 1999 and 2001 by the project geomorphologists about the Geomorphic Units (GUs) of the territory. In general, these correspond closely to the areas covered by the survey units because team leaders worked daily with the GIs to define their units in a way that respected real differences in slope, land use, and natural and anthropogenic processes. GUs consistently cover the same ground as DUs, although their shapes and sizes are not always identical to the DUs. The data from this table represents original data but was refined in 2020 to created standardized terms.[7]

DOI: https://doi.org/10.6078/M7JH3JBR

- **Geomorph Unit:** The identifying number of the Geomorphic Unit. [Explore Data: https://n2t.net/ark:/28722/k2c259n0v]
- **Toponym:** Local name for the district of the GU, usually taken from topographic maps or local informants. [Search Data: https://n2t.net/ark:/28722/k25d97d8v]
- **Toponym (Linked):** Local name for the region of the Zone. Indexed, structured, and linked. [Search Data: https://n2t.net/ark:/28722/k25h7z49q]
- **Bedrock:** Class of bedrock. Values include "Limestone," "Pliocene Marine," and "No Data." [Explore Data: https://n2t.net/ark:/28722/k2sx6q870]
- **Morph-Code:** Shorthand code for identifying morphostratigraphy.
- **Morphostratigraphy:** Morphostratigraphy description. [Explore Data: https://n2t.net/ark:/28722/k2g453q3b]
- **Disturbance-Modern:** Forms of modern human disturbance. [Explore Data: https://n2t.net/ark:/28722/k2qn6j99z]
- **Land-Use:** Land use and ground cover. [Explore Data: https://n2t.net/ark:/28722/k2vd78427]
- **Land-Use (Note):** Comments on land use. [Search Data: https://n2t.net/ark:/28722/k2057zr89]

- **Stability:** Stability of sediments and soils. [Explore Data: https://n2t.net/ark:/28722/k23x8pk4q]
- **Erosion:** Erosion landforms. [Explore Data: https://n2t.net/ark:/28722/k27p9dc8v]
- **Color:** Soil color according to Munsell soil book designations. [Explore Data: https://n2t.net/ark:/28722/k2cc1dt0x]
- **Lichen:** Presence/absence of lichen. [Explore Data: https://n2t.net/ark:/28722/k2h424m42]
- **Texture-Code:** Shorthand code used for identifying soil texture.
- **Texture:** Description of soil texture. [Explore Data: https://n2t.net/ark:/28722/k2rn3k68q]
- **Carbonate:** Class of carbonate. [Search Data: https://n2t.net/ark:/28722/k2wd4912g]
- **Morphostrat Class:** Primary class of morphostratigraphy. [Explore Data: https://n2t.net/ark:/28722/k2kw5th7s]
- **Period (Geomorphology):** Geological period. [Explore Data: https://n2t.net/ark:/28722/k2rb7g194]

II.7. GIS Shapefiles

The Eastern Korinthia Archaeological Survey has released six shapefiles for download via the Linked Media Page (https://n2t.net/ark:/28722/k2ff43n9r) at Open Context. These include a general *Discovery Units* (https://n2t.net/ark:/28722/k2df72g4h) shapefile (including all classes except for Extensive); *Extensive Units* (https://n2t.net/ark:/28722/k2j67s87s) shapefile; Zones shapefile; *Geomorphic Units* (https://n2t.net/ark:/28722/k2nz8h317) shapefile; *LOCA* (https://n2t.net/ark:/28722/k2sn0hh26) shapefile; and *LOCA Grid* (https://n2t.net/ark:/28722/k2xd1795v) shapefile. All GIS shapefiles were created using the WGS 1984 Coordinate System, UTM Zone 34N.

II.7.1. Discovery Units Shapefile

The *Discovery Units GIS* (https://n2t.net/ark:/28722/k2df72g4h) shapefile contains all EKAS survey units of all classes except for Experimental Discovery Units and LOCAs (both of which often overlap Discovery Units and are therefore assigned to their own shapefiles). The fields below correspond entirely to fields in the *Location Data Table* except for *FID* and *Shape* fields which were generated by ArcGIS as attribute fields.

ARK (Archive): https://n2t.net/ark:/28722/k2df72g4h

- **FID:** Feature ID for Discovery Units, generated automatically by ArcGIS in creating new shapefile. Unrelated to other FID values in other shapefiles.
- **Shape:** Type of shape of shapefile generated by ArcGIS. A single value: Polygon.
- **DU:** The identifying number of the Discovery Unit. This number joins to Discovery-Unit ID field in Units tables and Survey-Unit field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1).
- **Area:** The area of the survey unit in square meters calculated through ArcGIS. Not an original field of data collection but added as an aid to analysis.
- **X_Centroid:** The UTM x coordinate of the centroid of the survey unit calculated through ArcGIS.
- **Y_Centroid:** The UTM y coordinate of the centroid of the survey unit calculated through ArcGIS.

II.7.2. Extensive Units Shapefile

The *Extensive Units GIS* (https://n2t.net/ark:/28722/k2j67s87s) shapefile is reserved for extensive survey units. Extensive Units were separated from the other DUs because in some cases they overlap exactly with the same spaces documented through Standard DU survey. These spatial overlaps complicated presentation as a single shapefile within the GIS and recommended a separation of extensive survey units from the other classes of discovery units.

ARK (**Archive**): https://n2t.net/ark:/28722/k2j67s87s

- **FID:** Feature ID for Extensive Discovery Units, generated automatically by ArcGIS in creating new shapefile. Unrelated to other FID values in other shapefiles.
- **Shape:** Type of shape of shapefile generated by ArcGIS. A single value: Polygon.
- **DU:** The identifying number of the Extensive Discovery Unit. This field joins to Discovery-Unit ID field in Units tables and Survey-Unit field in *Finds Data Table* (https://doi.org/10.6078/M7DR2SM1).
- **Area:** The area of the survey unit in square meters calculated through ArcGIS. Not an original field of data collection but added as an aid to analysis.
- **X_Centroid:** The UTM x coordinate of the centroid of the survey unit calculated through ArcGIS.
- **Y_Centroid:** The UTM y coordinate of the centroid of the survey unit calculated through ArcGIS.
- **MBG_Width:** A minimum bounding geometry field calculated through ArcGIS to provide a sense of the width of the survey unit. MBG-Width is the least distance between two vertices of a convex hull.
- **MBG_Length:** A minimum bounding geometry field calculated through ArcGIS to provide a sense of the length of the survey unit. MBG-Length is the greatest distance between two vertices of a convex hull.
- **Class:** The character of the survey unit. Classes include standard collection and six non-standard forms of collection.

- **Photos:** Names of associated digital photos.
- **Toponym:** Local name for the district of the survey unit, usually taken from topographic maps or local informants.
- **Elevation:** The elevation of the center point of the survey unit in meters above sea level. Taken from the 1:5,000 topographic maps produced by the Hellenic Military Geographical Service.
- **Decriptio:** Qualitative description of the character, location, and identifying attributes of survey unit as well as information about how to access to the unit.

II.7.3. Zone Shapefile

The *Zone GIS* (https://n2t.net/ark:/28722/k2pv6tk84) shapefile shows locations of all 60 zones created for analytical purposes and includes basic descriptive fields.

ARK (**Archive**): https://n2t.net/ark:/28722/k2pv6tk84

- **FID:** Feature ID for Zones, generated automatically by ArcGIS in creating new shapefile. Unrelated to other FID values in other shapefiles.
- **Shape:** Type of shape of shapefile generated by ArcGIS. A single value: Polygon.
- **Zone:** The identifying number of the Zone, which joins to the Zone field in the *Zones Data* (https://doi.org/10.6078/M71G0JDH). Between 1 and 60.
- **ZoneName:** Unique name assigned to Zone during its creation based on local toponyms.

II.7.4. Geomorphic Units Shapefile

The *Geomorphic Units GIS* (https://n2t.net/ark:/28722/k2nz8h317) shapefile shows the locations of Geomorphic Units. Other than the FID and Shape field (which are generated automatically by ArcGIS), all the fields below are identical to those used in the *Geomorphology Data Table* (https://doi.org/10.6078/M7JH3JBR). See the notations above regarding resources to learn more about the Geomorphic Units.

ARK (Archive): https://n2t.net/ark:/28722/k2nz8h317

- **FID:** Feature ID for Geomorphic Units, generated automatically by ArcGIS in creating new shapefile. Unrelated to other FID values in other shapefiles.
- **Shape:** Type of shape of shapefile generated by ArcGIS. A single value: Polygon.
- **GU:** The identifying number of the Geomorphic Unit, which joins to Geomorph-Unit field in *Geomorphology Data Table* (https://doi.org/10.6078/M7JH3JBR).
- **Area:** The area of the Geomorphic Unit in square meters calculated through ArcGIS. Not an original field of data collection but added as an aid to analysis.
- **Toponym:** Toponym. Local name for the district of the survey unit, usually taken from topographic maps or local informants.
- **Bedrock:** Class of bedrock. Values include "Limestone," "Pliocene Marine," and "No Data."
- **Morph_Code:** Shorthand code used for identifying morphostratigraphy.
- **Morpho:** Morphostratigraphy description.
- **MorphoClas:** Primary morphostratigraphy class.
- **Disturbance:** Forms of modern human disturbance.
- **LandUse:** Land use and ground cover.
- **Stability:** Stability of sediments and soils.
- **Erosion:** Erosion landforms.

- **Color:** Soil color according to Munsell soil book designations.
- **Lichen:** Presence/absence of lichen.
- **Texture_Co:** Shorthand code used for identifying soil texture.
- **Texture:** Description of soil texture.
- **Carbonate:** Class of carbonate.

II.7.5. Localized Cultural Anomalies Shapefile

The *Localized Cultural Anomalies (LOCA) GIS* (https://n2t.net/ark:/28722/k2sn0hh26) shapefile shows the distribution of LOCAs. A few select fields from the *LOCAs Data Table* (https://doi.org/10.6078/M7571947) are included in the shapefile. The file lists all EKAS LOCAs except for 3 three Special Interest Areas (Kromna, Vayia, and Vigla), which are 3 broadly defined LOCAs that spatially overlap focused LOCAs in those districts.

ARK (Archive): https://n2t.net/ark:/28722/k2sn0hh26

- **FID:** Feature ID for Localized Cultural Anomalies, generated automatically by ArcGIS in creating new shapefile. Unrelated to other FID values in other shapefiles.
- **Shape:** Type of shape of shapefile generated by ArcGIS. A single value: Polygon.
- **Unit:** The identifying number of the Localized Cultural Anomaly. This field joins to Collection-Unit field in *LOCAs Data Table* (https://doi.org/10.6078/M7571947).
- **Area:** The area of the LOCA in square meters calculated through ArcGIS.
- **X_Centroid:** The UTM x coordinate of the centroid of the LOCA calculated through ArcGIS.
- **Y_Centroid:** The UTM y coordinate of the centroid of the LOCA calculated through ArcGIS.

II.7.6. Localized Cultural Anomalies Grid Unit Shapefile

The *Localized Cultural Anomalies (LOCA) Grid Unit GIS* (https://n2t.net/ark:/28722/k2xd1795v) shapefile shows the location of sub-units at a dozen LOCAs investigated through more intensive collection. A few of the fields from the *LOCAs-Grids Data Table* (https://doi.org/10.6078/M79021W0) are included in the shapefile.

ARK (**Archive**): https://n2t.net/ark:/28722/k2xd1795v

- **FID:** Feature ID for LOCA Grids, generated automatically by ArcGIS in creating new shapefile. Unrelated to other FID values in other shapefiles.
- **Shape:** Type of shape of shapefile generated by ArcGIS. A single value: Polygon.
- **GS_Number:** Individual grid square number within LOCA grid.
- **X_Centroid:** The UTM x coordinate of the centroid of the LOCA grid calculated through ArcGIS.
- **Y_Centroid:** The UTM y coordinate of the centroid of the LOCA grid calculated through ArcGIS.
- **Area:** The area of the LOCA Grid in square meters calculated through ArcGIS.
- **GS_ID:** Unique identifier for individual grid square. A combination of the LOCA unit and the sub-unit / grid square number. Joins to the GS-ID field in the *LOCAs-Grids Data Table* and Sub-Unit-ID field in *Finds Data Table*.

Endnotes

1 The searchable and browsable data tables at Open Context mark dynamic data based in a version-control system. As I noted in Chapter 7, we will use the project landing page to make note of problems identified after publication, and will update online datasets as those problems warrant.

2 The multiplier factor is determined by dividing the value of the Spacing field by the width of the swath (i.e., 2). Thus, in a DU in which fieldwalkers were spaced 10 meters apart and surveyed 1 meter to the right and one meter to the left of their line, the 2-meter-wide swath represents 1/5 or 20% of the 10 meter-wide interval. In such case, the multiplier factor to create the putative density would be 5. Cf. Ch. 10.

3 In the case of the 1999 survey, modern feature information was recorded on the fourth page (the Modern Sweep page).

4 To learn more about LOCA investigations through sub-unit collections, including the different strategies of counting and collection, see the LOCAs Data and the season reports generated by the LOCA / experimental team that are published at the EKAS Related Media page at Open Context.

5 In this zone, 46% of the area of Discovery Units were alluvial, 26% colluvial; 26% show impact by anthropogenic causes; and 3% a mix of colluvium and anthropogenic.

6 Chronotypes in this complete list are presented as a hierarchy: see Section 8.5.3.

7 The viewer interested in learning more about these terms should consult the season reports produced by the GIs for each season as well as the geomorphology forms at the EKAS Linked Media Page at Open Context. For the spatial distribution of the GU data, cf. the Geomorphic Units GIS shapefile.

Bibliography

Adams, R. McC. *Land behind Baghdad: A History of Settlement on the Diyala Plains*. Chicago: University of Chicago Press, 1965.

Alcock, S. E. *Graecia Capta: The Landscapes of Roman Greece*. Cambridge: Cambridge University Press, 1993.

———. “Urban Survey and the Polis of Phlius.” *Hesperia* 60, no. 4 (1991): 421–63.

Alcock, S. E., and J. F. Cherry, eds. *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*. Oxford: Oxbow, 2004.

Alcock, S. E., and R. Osborne, eds. *Classical Archaeology*. Second Edition. Malden, MA: Wiley-Blackwell, 2007.

Alcock, S. E., J. F. Cherry, and J. Elsner, eds. *Pausanias: Travel and Memory in Roman Greece*. New York: Oxford University Press, 2001.

Alcock, S. E., J. F. Cherry, and J. L. Davis. “Intensive Survey, Agricultural Practice and the Classical Landscape of Greece.” In *Classical Greece: Ancient Histories and Modern Archaeologies*, edited by I. Morris, 137–70. Cambridge: Cambridge University Press, 1994.

Ammerman, A. J. “Farewell to the Garden of Eden: Survey Archaeology after the Loss of Innocence.” *British School at Athens Studies* 11 (2004): 177–82.

———. “Plow-Zone Experiments in Calabria, Italy.” *Journal of Field Archaeology* 12, no. 1 (1985): 33–40.

Ammerman, A. J., and M. W. Feldman. “Replicated Collection of Site Surfaces.” *American Antiquity* 43, no. 4 (1978): 734–40.

Anderson-Stojanović, V. R., and J. E. Jones. “Ancient Beehives from Isthmia.” *Hesperia* 71, no. 4 (October 1, 2002): 345–76.

Aslamatzidou-Kostourou, Z. “Romaiki Epauli stin Katounistra Loutrakiou.” In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistoric Times Until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 179–89. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

Attema, P., J. Bintliff, J. van Leusen, P. Bes, T. de Haas, D. Donev, W. Jongman, et al. “A Guide to Good Practice in Mediterranean Survey Projects.” *Journal of Greek Archaeology* 5 (2020): 1–62.

Barbié du Bocage, J. Denis. “Carte de la Morée: dressée et gravée au Dépôt G. de la Guerre.” Paris: Dépôt General de la Guerre, 1814.

Barker, G., and R. Francovich, eds. *Extracting Meaning from Ploughsoil Assemblages*. Vol. 5. POPULUS Project. Oxford: Oxbow Books, 2000.

Barker, G., C. Mee, R. Schon, and J. M. Thompson. “Responses to ‘The Hidden Landscape of Prehistoric Greece’, by J.L. Bintliff, P. Howard and A.M. Snodgrass (JMA 12.2, December 1999).” *Journal of Mediterranean Archaeology* 13 (2000): 100–115.

Bevan, A., and J. Conolly. *Mediterranean Islands, Fragile Communities and Persistent Landscapes: Antikythera in Long-Term Perspective*. Cambridge: Cambridge University Press, 2013.

Bintliff, J. L. “Agricultural Intensification and the Evidence from Off-site Survey Archaeology.” *Journal of World Prehistory* 36, no. 1 (2023): 109–45. https://doi.org/10.1007/s10963-023-09176-4.

———. “Beyond dots on the map: future directions for surface artifact survey in Greece.” In *The Future of Surface Artefact Survey in Europe*, edited by J. L. Bintliff, M. Kuna, and N. Venclová, 3–20. Sheffield: Sheffield Academic Press, 2000b.

———. “The Concepts of ‘Site’ and ‘off-Site’ Archaeology in Surface Artefact Survey.” In *Non-Destructive Techniques Applied to Landscape Archaeology*, edited by Marinella Pasquinucci and Frédéric Trément, 200–215. Oxford: Oxbow, 2000a.

Bintliff, J. L., and A. M. Snodgrass. “Off-Site Pottery Distributions: A Regional and Interregional Perspective.” *Current Anthropology* 29, no. 3 (June 1, 1988): 506–13.

Bintliff, J. L., and P. Howard. “Studying Needles in Haystacks: Surface Survey and the Rural Landscape of Central Greece in Roman Times.” *Pharos: Journal of the Netherlands Institute in Athens* 7 (1999): 51–91.

Bintliff, J. L., E. Farinetti, B. Slapšak, and A. M. Snodgrass. *Boeotia Project, Volume II: The City of Thespiae. Survey at a Complex Urban Site*. McDonald Institute Monographs. Cambridge: McDonald Institute for Archaeological Research in the University of Cambridge, 2017.

Bintliff, J. L., E. Farinetti, P. Howard, K. Sarri, and K. Sbonias. "Classical Farms, Hidden Prehistoric Landscapes and Greek Rural Survey: A Response and an Update." *Journal of Mediterranean Archaeology* 15, no. 2 (2002): 259–65.

Bintliff, J. L, M. Kuna, and N. Venclová, eds. *Beyond dots on the map: future directions for surface artefact survey in Greece*. Sheffield: Sheffield Academic Press, 2000.

Bintliff, J. L., P. Howard, and A. M. Snodgrass. *Testing the Hinterland: The Work of the Boeotia Survey (1989–1991) in the Southern Approaches to the City of Thespiai*. Cambridge: McDonald Institute of Archeological Research, 2007.

———. "The Hidden Landscape of Prehistoric Greece." *JMA*, 1999, 136–68.

Blegen, C. W. "Dr. Blegen's Reply." *AJA* 27, no. 2 (1923): 156–63.

———. "Corinth in Prehistoric Times." *AJA* 24, no. 1 (March 1920): 1–13.

Bowden, H., and D. Gill. "Late Roman Methana." In *A Rough and Rocky Place: The Landscape and Settlement History of the Methana Peninsula, Greece*, edited by C. Mee and H. A. Forbes, 84–91. Liverpool: Liverpool University Press, 1997b.

———. "Roman Methana." In *A Rough and Rocky Place: The Landscape and Settlement History of the Methana Peninsula, Greece*, edited by C. Mee and H. A. Forbes, 77–83. Liverpool: Liverpool University Press, 1997a.

Broneer, O. *Isthmia II. Topography and Architecture*. Princeton: American School of Classical Studies at Athens, 1973.

———. *Isthmia I. Temple of Poseidon*. Princeton: American School of Classical Studies at Athens, 1971.

———. "The Cyclopean Wall on the Isthmus of Corinth and Its Bearing on Late Bronze Age Chronology." *Hesperia* 35 (1966): 346–62.

Broodbank, C. *An Island Archaeology of the Early Cyclades*. Cambridge: Cambridge University Press, 2000.

Brown, A. R. *Corinth in Late Antiquity: A Greek, Roman and Christian City*. I. B. Tauris, 2018.

Campana, S. "Emptyscapes: Filling an 'Empty' Mediterranean Landscape at Rusellae, Italy." *Antiquity* 91, no. 359 (2017): 1223–40.

———. "Sensing Ruralscapes. Third-Wave Archaeological Survey in the Mediterranean Area." In *Digital Methods and Remote Sensing in Archaeology: Archaeology in the Age of Sensing*, edited by M. Forte and S. Campana, 113–45. Quantitative Methods in the Humanities and Social Sciences. Cham: Springer International Publishing, 2016.

Caraher, W. "The Corinthian Periphery." In *Early Christian Centers, Vol. 3. Corinth* edited by A.-C. Heidel and B. Schliesser. Mohr Siebeck: Tübingen, forthcoming.

———. "Collaborative Digital Publishing in Archaeology: Data, Workflows, and Books in the Age of Logistics." In *Critical Archaeology in the Digital Age: Proceedings of the 12th IEMA Visiting Scholar's Conference*, edited by Kevin Garstki, 153–64. Digital Archaeology Series 2. Los Angeles: UCLA Cotsen Institute of Archaeology Press, 2022.

———. "Slow Archaeology: Technology, Efficiency, and Archaeological Work." In *Mobilizing the Past for a Digital Future: The Potential of Digital Archaeology*, edited by E. Averett, D. Counts, and J. Jordan. Grand Forks, ND: The Digital Press at the University of North Dakota, 2016.

———. "Slow Archaeology." *North Dakota Quarterly* 80, no. 2 (2015b): 43–52.

———. "Epigraphy, Liturgy, and Imperial Policy on the Justinianic Isthmus." In *Bridge of the Untiring Sea: The Corinthian Isthmus from Prehistory to Late Antiquity*, edited by E. R. Gebhard and T. E. Gregory. Hesperia Supplement 48. Princeton: The American school of Classical Studies at Athens, 2015a.

———. "Toward a Slow Archaeology (Part 2)." *Archaeology of the Mediterranean World* (blog), February 18, 2014. https://mediterraneanworld.wordpress.com/2014/02/18/toward-a-slow-archaeology-part-2/.

———. "The Ambivalent Landscape of Christian Corinth: The Archaeology of Place, Theology, and Politics in a Late Antique City." In *Corinth in Contrast: Studies in Inequality*, edited by S. J. Friesen, S. James, and D. Schowalter, 143–65. Leiden: Brill, 2013.

Caraher, W., and D. K. Pettegrew. "Imperial Surplus and Local Tastes: A Comparative Study of Mediterranean Connectivity and Trade." In *Across the Corrupting Sea: Post-Braudelian Approaches to the Ancient Eastern Mediterranean*, edited by C. W. Concannon and L. A. Mazurek, 165–91. London: Routledge, 2016.

———. "Artifact Distributions." In *Pyla-Koutsopetria I: Archaeological Survey of an Ancient Coastal Town*, edited by W. Caraher, R. S. Moore, and D. K. Pettegrew, 173–255. American Schools of Oriental Research Archaeological Reports 21. Boston: The American Schools of Oriental Research, 2014.

Caraher, W. and L. Diacopoulos. "Less than a Village: Patterns of Rural Settlement in the Landscape of the Southeastern Korinthia." Paper. San Francisco, 2004.

Caraher, W., and T. E. Gregory. "Fortifications of Mount Oneion, Corinthia." *Hesperia* 75, no. 3 (July 1, 2006): 327–56.

Caraher, W., D. K. Pettegrew, and S. James. "Towers and Fortifications at Vayia in the Southeast Corinthia." *Hesperia* 79, no. 3 (July 1, 2010): 385–415.

Caraher, W., D. Nakassis, and D. K. Pettegrew. "Intensive Survey." In *Pyla-Koutsopetria I: Archaeological Survey of an Ancient Coastal Town*, edited by W. Caraher, R. S. Moore, and D. K. Pettegrew, 17–47. American Schools of Oriental Research Archaeological Reports 21. Boston: The American Schools of Oriental Research, 2014.

———. "Siteless Survey and Intensive Data Collection in an Artifact-Rich Environment: Case Studies from the Eastern Corinthia, Greece." *JMA* 19 (2006): 7–43.

Caraher, W., R. S. Moore, and D. K. Pettegrew. *Pyla-Koutsopetria I: Archaeological Survey of an Ancient Coastal Town*. Vol. 21. American Schools of Oriental Research Archaeological Reports. Boston: The American Schools of Oriental Research, 2014.

Caraher, W., S. Gallimore, D. Nakassis, and S. A. James. "Survey and the 7th Century in the Western Argolid." *Journal of Greek Archaeology* 5 (January 1, 2020): 377–405. https://doi.org/10.32028/9781789697926-14.

Caraher, W., T. E. Gregory, D. K. Pettegrew, and L. Tzortzopoulou-Gregory. "Between Sea and Mountain: The Archaeology of a 20th-Century 'Small World' in the Upland Basins of the Southeastern Korinthia." Paper. Vancouver, 2009.

Casana, J. "The Archaeological Landscape of Late Roman Antioch." In *Culture and Society in Later Roman Antioch*, edited by I. Sandwell and J. Huskinson, 102–25. Oxford: Oxbow Books, 2004.

Catling, H. W. "Archaeology in Greece, 1984–85." *Archaeological Reports*, no. 31 (1984–1985): 3–69.

———. “Archaeology in Greece, 1978–79.” *Archaeological Reports*, no. 25 (1978–1979): 3–42.

———. “Archaeology in Greece, 1976–77.” *Archaeological Reports*, no. 24 (1977–1978): 3–69.

Chandler, R. *Travels in Greece: Or an Account of a Tour Made at the Expense of the Society of Dilettanti*. Oxford: Clarendon Press, 1776.

Cherry, J. F. “Archaeology beyond the Site: Regional Survey and its Future.” In *Theory and Practice in Mediterranean Archaeology: Old World and New World Perspectives*, edited by J. K. Papadopoulos and R. M. Leventhal, 137–59. Los Angeles: 2003.

———. “Regional Survey in the Aegean: ‘The New Wave’ (And After).” In *Beyond the Site: Regional Studies in the Aegean Area*, edited by P. N. Kardulias, 91–112. Lanham, Maryland: University Press of America, 1994.

———. “Frogs around the Pond: Perspectives in Current Archaeological Projects.” In *Archaeological Survey in the Mediterranean Area*, edited by D. R. Keller and D. W. Rupp, 375–416. BAR International Series 155. Oxford: British Archaeological Reports, 1983.

Cherry, J. F., J. L. Davis, and E. Mantzourani. *Landscape Archaeology as Long-Term History: Northern Keos in the Cycladic Islands from Earliest Settlement until Modern Times*. Los Angeles: University of California, 1991.

Cherry, J. F., J. L. Davis, E. Mantzourani, and T. M. Whitelaw. “The Survey Methods.” In *Landscape Archaeology as Long-Term History: Northern Keos in the Cycladic Islands from Earliest Settlement until Modern Times*, edited by J. F. Cherry, J. L. Davis, and E. Mantzourani, 13–35. Monumenta Archaeologica 16. Los Angeles: University of California, 1991.

Clement, P. A. “Alaric and the Fortifications of Greece.” In *Αρχαία Μακεδονία, II. Ανακοινώσεις Κατά Το Δεύτερο Διεθνές Συμπόσιο Θεσσαλονίκη, 19—24 Αυγούστου 1973. Ancient Macedonia, 2. Papers Read at the Second International Symposium Held in Thessaloniki, 19–24 August 1973*, 135–37. Thessaloniki: 1977b.

———. “Isthmia Excavations.” *AD* 28 1973 (1977a): 143–49.

———. “Isthmia Excavations.” *AD* 27 1972 (1976): 224–31.

———. “The Date of the Hexamilion.” In *Essays in Memory of Basil Laourdas*, 159–64. Thessaloniki: 1975.

———. “Isthmia Excavations.” *AD* 26, B’1 1971 (1973): 100–11.

———. “Isthmia Excavations.” *AD* 25, B’1 1970 (1972): 161–67.

———. "Isthmia Excavations." *AD* 23, B'1 1968 (1969): 137–43.

Clement, P. A., and M. M. Thorne. "From the West Cemetery at Isthmia." *Hesperia* 43 (1974): 401–11.

Cloke, C. F. "Farming on the Fringe: Diachronic Changes in Land-Use Patterns and Agricultural Strategies in Ancient Nemea." *Journal of Greek Archaeology* 6 (2021): 1–24.

———. "The Landscape of the Lion: Economies of Religion and Politics in the Nemean Countryside (800 B.C. to A.D. 700)." Ph.D., University of Cincinnati, 2016.

Cloke, C. F., A. R. Knodell, S. Fachard, and K. Papangeli. "Diagnostic Visibility and Problems of Quantification in Survey Assemblages: Examples from the Mazi Archaeological Project (Northwest Attica)." In *Fields, Sherds, and Scholars: Recording and Interpreting Survey Ceramics.* edited by A. Meens, M. Nzou, and W. van de Put. Publications of the Netherlands Institute at Athens IX. Leiden: Sidestone Press, 2023.

Coroneos, C., L. Diacopoulos, T. E. Gregory, I. Johnson, J. Noller, S. A. Paspalas, and A. Wilson. "The Australian Paliochora-Kythera Archaeological Survey. Field Seasons 1999-2000." *Mediterranean Archaeology* 15 (2002): 126–43.

Cosmopoulos, M. B. *The Rural History of Ancient Greek City-States: The Oropos Survey Project*. Vol. 1001. BAR International Series. Oxford: British Archaeological Reports, 2001.

Counts, D. B., E. W. Averett, K. Garstki, and M. K. Toumazou. *Visualizing Votive Practice: Exploring Limestone and Terracotta Sculpture from Athienou-Malloura through 3-D Models*. Grand Forks, ND: The Digital Press at the University of North Dakota, 2020.

Cummer, W. Willson. "A Roman Tomb at Corinthian Kenchreai." *Hesperia* 40, no. 2 (April 1, 1971): 205–31.

Davis, J. L, and J. Bennet. Eds. *The Pylos Regional Archaeological Project. A Retrospective.* Princeton: American School of Classical Studies in Athens, 2018.

Davis, J. L., S. E. Alcock, J. Bennet, Yannos G. Lolos, and Cynthia W. Shelmerdine. "The Pylos Regional Archaeological Project Part I: Overview and the Archaeological Survey." *Hesperia* 66.3 (1997): 391–494.

Diacopoulos, L. "The Archaeology of Modern Greece." In *Mediterranean Archaeological Landscapes: Current Issues*, edited by E.-F. Athanassopoulos and L. Wandsnider, 183–98. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2004.

Dixon, M. D. *Late Classical and Early Hellenistic Corinth, 338–196 B.C.* London: Routledge, 2014.

Dodwell, E. *A Classical and Topographical Tour Through Greece: During the Years 1801, 1805, and 1806*. Vol. II. London: Rodwell & Martin, 1819.

Doukellis, P. N. "Le Territoire de la Colonie Romaine de Corinthe." In *Structures Rurales et Sociétés Antiques. Actes du Colloque de Corfou, 14–16 mai 1992*, edited by P. N. Doukellis and L. G. Mendoni, 359–90. Paris: 1994.

Dunnell, R. C. "The Notion Site." In *Space, Time, and Archaeological Landscapes*, edited by J. Rossignol and L. Wandsnider, 21–41. Interdisciplinary Contributions to Archaeology. Boston: Springer, 1992.

Dunnell, R. C., and W. S. Dancey. "The Siteless Survey: A Regional Scale Data Collection Strategy." In *Advances in Archaeological Method and Theory*, edited by M. B. Schiffer, 267–87. San Diego: Academic Press, 1983.

Ebeling, J. R, and W. Caraher. "The Case for Digital Site Reports." *Near Eastern Archaeology* 85, no. 1 (March 2022): 74–77.

Ebert, J. I. *Distributional Archaeology*. Salt Lake City: University of Utah Press, 1992.

Engels, D. *Roman Corinth. An Alternative Model for the Ancient City*. Chicago: 1990.

Erny, G. "Statistical Approaches to Small Site Diversity: New Insights from Cretan Legacy Survey Data." *Journal of Mediterranean Archaeology*, July 21, 2023. https://doi.org/10.1558/jma.26678.

Erny, G., and W. Caraher. "The Kingdom of Chelmis: Architecture, Material Culture, and the Modern Landscape of the Western Argolid." *Journal of Field Archaeology* 45, no. 3 (April 2, 2020): 209–21.

Fentress, E. "What Are We Counting For?" In *Extracting Meaning from Ploughsoil Assemblages*, edited by R. Francovich and H. Patterson, 44–52. Oxford: Oxbow, 2000.

Fentress, E., and P. Perkins. "Counting African Red Slip Ware." In *L'Africa Romana: Atti Del V Convegno Di Studio Sassari, 11–13 Dicembre 1987*, edited by A. Mastino. Sassari: University of Sassari, 1988.

Fentress, E., S. Fontana, R. B. Hitchner, and P. Perkins. "Accounting for ARS: Fineware and Sites in Sicily and Africa." In *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, edited by S. E. Alcock and J. F. Cherry, 147–62. Oxford: Oxbow Books, 2004.

Finley, M. I. *The Ancient Economy.* Berkeley: University of California Press, 1973.

Flannery, K. V. *The Early Mesoamerican Village*. New York: Academic Press, 1976.

Foley, R. Off-Site Archaeology and Human Adaptation in Eastern Africa: An Analysis of Regional Artefact Density in the Amboseli, Southern Kenya. BAR International Series 97. Oxford: British Archaeological Reports, 1981b.

———. "Off-Site Archaeology: An Alternative Approach for the Short-Sited." In Pattern of the Past: Studies in Honour of David Clarke, edited by I. Hodder, G. Isaac, and N. Hammond, 157–183. Cambridge: Cambridge University Press, 1981a.

Forbes, H. "Off-Site Scatters and the Manuring Hypothesis in Greek Survey Archaeology: An Ethnographic Approach." *Hesperia* 82.4 (2013): 551–94.

Fossey, J. M. "The Perakhóra Peninsula Survey." *Echos du Classique/ Classical Views* 34.9 (1990): 201–11.

Fowler, H. N. "I. Corinth and the Corinthia." In *Corinth, Vol. I: Introduction: Topography & Architecture*, edited by H. N. Fowler and R. Stillwell, 18–114. Cambridge, MA: 1932.

Foxhall, L. "Colouring in the Countryside. Response to David K. Pettegrew, 'Chasing the Classical Farmstead', JMA 14.2 (December 2001)." *Journal of Mediterranean Archaeology* 14, no. 2 (2001): 216.

———. "The Running Sands of Time: Archaeology and the Short-Term." *World Archaeology* 31, no. 3 (2000): 484–98. https://doi.org/10.1080/00438240009696934.

Francovich, R., and H. Patterson, eds. *Extracting Meaning from Ploughsoil Assemblages*. Oxford: Oxbow, 2000.

Frey, J. M. "Disuse, Re-Use, and Misuse of the Early Byzantine Fortress at Isthmia." In *City Walls in Late Antiquity: An Empire-Wide Perspective. Proceedings of a Conference Held at the British School at Rome and the Swedish Institute of Classical Studies in Rome on 20–21 June 2018*, edited by E. E. Intagliata, S. J. Barker, and C. Courault, 147–55. Oxford: Oxbow, 2020.

———. *Spolia in Fortifications and the Role of the Common Builder in Late Antiquity: Agents of Change*. Brill Academic, 2015.

Frey, J. M., and T. E. Gregory. "Old Excavations, New Interpretations: The 2008–2013 Seasons of The Ohio State University Excavations at Isthmia." *Hesperia* 85, no. 3 (2016): 437–90.

Gallant, T. "Social History and Historical Archaeology in Greece: The Kefalonia and Andros Project, 2010–2014." In *Reframing Classical Archaeology in Greece: Festschrift for Anthony M. Snodgrass*, edited by L. Nevett and J. Whitely, 177–93. Cambridge: The McDonald Institute for Archaeology, 2018.

———. "'Background Noise' and Site Definition: A Contribution to Survey Methodology." *Journal of Field Archaeology* 13 (1986): 403–18.

Gallimore, S., S. James, W. Caraher, and D. Nakassis. "To Argos: Archaeological Survey in the Western Argolid, 2014–2016." In *From Maple to Olive: Proceedings of a Colloquium to Celebrate the 40th Anniversary of the Canadian Institute in Greece, Athens, 10–11 June 2016*, edited by D. W. Rupp and J. E. Tomlinson, 10:421–38. Publications of the Canadian Institute in Greece. Athens: Canadian Institute in Greece, 2017.

Garstki, K. ed. *Critical Archaeology in the Digital Age: Proceedings of the 12th IEMA Visiting Scholar's Conference*. Vol. 2. Digital Archaeology Series. Los Angeles: UCLA Cotsen Institute of Archaeology Press, 2022a.

Garstki, K. "Challenges of a Critical Archaeology in the Modern World." In *Critical Archaeology in the Digital Age: Proceedings of the 12th IEMA Visiting Scholar's Conference*, edited by K. Garstki, 1–9. Digital Archaeology Series 2. Los Angeles: UCLA Cotsen Institute of Archaeology Press, 2022b.

Garstki, K., D. B. Counts, E. W. Averett, S. W. Kansa, and E. C. Kansa. "A Square Peg in a Round Hole: Rethinking Archaeological Publication." *Near Eastern Archaeology* 83, no. 4 (December 2020): 264–69.

Gebhard, E. R. "Rites for Melikertes-Palaimon in the Early Roman Corinthia." In *Urban Religion in Roman Corinth: Interdisciplinary Approaches,* edited by D. N. Schowalter and S. J. Friesen, 165–204. *Harvard Theological Studies* 53. Cambridge, MA: Harvard University, 2005.

———. "The Isthmian Games and the Sanctuary of Poseidon in the Early Empire." In *The Corinthia in the Roman Period: Including the Papers given at a Symposium Held at the Ohio State University on 7–9 March, 1991*, edited by T. E. Gregory, 78–94. Ann Arbor: Journal of Roman Archaeology, 1993b.

———. "The Evolution of a Panhellenic Sanctuary: From Archaeology towards History at Isthmia." In *Greek Sanctuaries, New Approaches*, edited by N. Marinatos and R. Hägg, 154–77. London: Routledge, 1993a.

———. *The Theater at Isthmia.* Chicago: University of Chicago, 1973.

Gebhard, E. R., and F. P. Hemans. "University of Chicago Excavations at Isthmia: II." *Hesperia* 67 (1998): 1–63.

———. "University of Chicago Excavations at Isthmia, 1989: I." *Hesperia* 61 (1992): 1–77.

Gebhard, E. R., and M. W. Dickie, "The View from the Isthmus, ca. 200 to 44 B.C." In *Corinth, the Centenary*, Corinth XX, edited by C. K. Williams II and N. Bookidis, 261–78. Princeton: American School of Classical Studies at Athens, 2003.

Gebhard, E. R., and T. E. Gregory, eds. *Bridge of the Untiring Sea: The Corinthian Isthmus from Prehistory to Late Antiquity*. Hesperia Supplement 48. Princeton: The American School of Classical Studies at Athens, 2015.

Gebhard, E., F. P. Hemans, and J. W. Hayes. "University of Chicago Excavations at Isthmia, 1989: III." *Hesperia* 67 (1998): 405–56.

Gerstel, S. E. J. "Perspectives on the Greek Village." *Journal of Modern Greek Studies* 38, no. 1 (2020): vii–x.

———. *Viewing the Morea: Land and People in the Late Medieval Peloponnese*. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 2013.

Gerster, B. "L'Isthme de Corinthe: tentatives de percement dans l'antiquité." *Bulletin de Correspondance Hellénique* (1884): 225–32.

Gill, D., C. Mee, and G. Taylor. "Artefact Catalogue." In *A Rough and Rocky Place: The Landscape and Settlement History of the Methana Peninsula, Greece*, edited by C. Mee and H. A. Forbes, 282–343. Liverpool: Liverpool University Press, 1997.

Giorgi, Andrea U. De. *Ancient Antioch: From the Seleucid Era to the Islamic Conquest*. Cambridge: Cambridge University Press, 2016.

Given, M. "Flowing Rock, Dancing around Trees: Conviviality and the Landscape of Cyprus." *Near Eastern Archaeology* 85, no. 1 (2022): 4–11.

———. "Conviviality and the Life of Soil." *Cambridge Archaeological Journal* 28 (2018): 127–43. https://doi.org/10.1017/S0959774317000609.

———. "Commotion, Collaboration, Conviviality: Mediterranean Survey and the Interpretation of Landscape." *Journal of Mediterranean Archaeology* 26, no. 1 (2013): 3–26. https://doi.org/10.1558/jmea.v26i1.3.

Given, M., A. B. Knapp, J. Noller, L. Sollars, and V. Kassianidou. *Landscape and Interaction. The Troodos Archaeological and Environmental Survey Project, Cyprus. Volume 2: The TAESP Landscape*. Oxford: Oxbow Books, 2013b.

———. *Landscape and Interaction. The Troodos Archaeological and Environmental Survey Project, Cyprus. Volume 1: Methodology, Analysis and Interpretation*. Oxford: Oxbow Books, 2013a.

Given, M., and A. B. Knapp, eds. *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*. Los Angeles: UCLA Cotsen Institute of Archaeology, 2003.

Given, M., and N. Meyer. "3.3. Mapping and Fieldwalking Procedures." In *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*, edited by M. Given and A. B. Knapp, 30–36. Los Angeles: UCLA Cotsen Institute of Archaeology, 2003.

Gregory, T. E. "People and Settlements of the Northeastern Peloponnese in the Late Middle Ages: An Archaeological Exploration." In *Viewing the Morea: Land and People in the Late Medieval Peloponnese*, edited by S. E. J. Gerstel, 276–306. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 2013b.

———. "Η Ανατολική Κορινθία Στην Παλαιοχριστιανική Εποχή." In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistoric Times Until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 275–84. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013a.

———. “Religion and Society in the Roman Eastern Corinthia.” In *Corinth in Context: Comparative Studies on Religion and Society*, edited by S. J. Friesen, D. N. Schowalter, and J. C. Walters, 433–76. Leiden: Brill, 2010.

———. “Ceramics, Metadata, and Expectations: The Problems of Synthetic Interpretation of Survey Data for Medieval Greece.” In *Medieval and Post-Medieval Greece: The Corfu Papers*, edited by J. L. Bintliff and H. Stöger. Oxford: Archaeopress, 2009.

———. “Contrasting Impressions of Land Use in Early Modern Greece: The Eastern Corinthia and Kythera.” In *Between Venice and Istanbul: Colonial Landscapes in Early Modern Greece*, edited by S. Davies and J. L. Davis, 40:173–98. Hesperia Supplements, 2007.

———. “Less Is Better: The Quality of Ceramic Evidence from Archaeological Survey and Practical Proposals for Low-Impact Survey in a Mediterranean Context.” In *Mediterranean Archaeological Landscapes: Current Issues*, edited by E.-F. Athanassopoulos and L. Wandsnider, 15–36. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2004.

———. “The Roman Bath at Isthmia: Preliminary Report 1972–1992.” *Hesperia* 64, no. 3 (July 1, 1995): 279–313.

———. *The Corinthia in the Roman Period*. Ann Arbor: Journal of Roman Archaeology, 1993b.

———. *Isthmia: Excavations Volume V, The Hexamilion and the Fortress*. Princeton: American School of Classical Studies at Athens, 1993a.

———. “A Desert Island Survey in the Gulf of Corinth.” *Archaeology* 39.3 (1986): 16-21.

———. “An Early Byzantine Complex at Akra Sophia Near Corinth.” *Hesperia* 54, no. 4 (October 1, 1985): 411–28.

———. “Diporto: A Byzantine Maritime Settlement in the Gulf of Korinth.” *Δελτίον της Χριστιανικής Αρχαιολογικής Εταιρίας* 12, 1984: 287–304.

———. “The Ohio Boiotia Expedition Exploration of the Thisbe Basin.” In Archaeological Survey in the Mediterranean Area, edited by D. R. Keller and D. W. Rupp, 155:245–47. BAR International Series. Oxford: B.A.R., 1983.

———. “Ohio Boeotia Expedition: Field Seasons 1979-1980.” Teiresias Archaeologica, 1980, 31–41.

Gregory, T. E., and L. Tzortzopoulou-Gregory. "Archaeological Survey and Understanding the Rural Landscape in Byzantine Greece: Some Specific Examples." *Journal of Greek Archaeology* 5 (2020), 514–527.

Gregory, T. E., and P. N. Kardulias. "Geophysical and Surface Surveys in the Byzantine Fortress at Isthmia 1985–1986." *Hesperia* 59, no. 3 (1990).

Haas, T. de, and M. van Leusen. "FAIR Survey: Improving Documentation and Archiving Practices in Archaeological Field Survey through CIDOC CRM." *FOLD&R: The Journal of Fasti on-Line*, 2020. http://www.fastionline.org/docs/FOLDER-sur-2020-12.pdf.

Hayes, J. W. *Late Roman Pottery*. London: British School at Rome, 1972.

Hayward, C. "Corinthian Stone Exploitation and the Interpretation of Inscribed Building Accounts." In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistory until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 63–78. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

———. "Geology of Corinth: The Study of a Basic Resource." *Corinth* XX (2003): 15–42.

———. "Geology of Corinth: The Study of a Basic Resource." In *Corinth XX. Corinth, the Centenary: 1896-1996*, edited by Charles K. Williams II and Nancy Bookidis, 20:15–42. Corinth XX. Princeton: American School of Classical Studies at Athens, 2003.

Hodder, I., and S. Hutson. *Reading the Past: Current Approaches to Interpretation in Archaeology*. Cambridge: Cambridge University Press, 2003.

Horden, P., and N. Purcell. *The Corrupting Sea: A Study of Mediterranean History*. Malden, MA: Blackwell, 2000.

Huggett, J., "Is Less More? Slow Data and Datafication in Archaeology." In *Critical Archaeology in the Digital Age: Proceedings of the 12th IEMA Visiting Scholar's Conference*, edited by Kevin Garstki, 97–110. Digital Archaeology Series 2. Los Angeles: UCLA Cotsen Institute of Archaeology Press, 2022.

Hutton, W. *Describing Greece: Landscape and Literature in the Periegesis of Pausanias*. New York: Cambridge University Press, 2005.

James, S. A. *Hellenistic Pottery: The Fine Wares*. Corinth VII.7. Princeton: American School of Classical Studies at Athens, 2018.

———. “The Last of the Corinthians? Society and Settlement from 146 to 44 B.C.E.” In *Corinth in Contrast: Studies in Inequality*, edited by S. J. Friesen, S. James, and D. N. Schowalter. Leiden: Brill Academic Press, 2013.

———. “An Olive Press Installation from the Eastern Korinthia.” Poster, Boston, 2005.

Jameson, M., C. Runnels, and T. van Andel. *A Greek Countryside: The Southern Argolid from Prehistory to the Present Day*. Stanford: Stanford University Press, 1994.

Jenkins, R. J. H., and H. Megaw. “Researches at Isthmia.” *The Annual of the British School at Athens* 32 (1932–1931): 68–89.

Johnson, I. “Aoristic Analysis: Seeds of a New Approach to Mapping Archaeological Distributions through Time.” In *[Enter the Past]: The E-Way into the Four Dimensions of Cultural Heritage. CAA 2003, Computer Applications and Quantitative Methods in Archaeology. Proceedings of the 31st Conference, Vienna, Austria, April 2003*, edited by S. Wien, BAR International Series, Vol. 1227. Oxford: Archaeopress, 2004.

Kajava, M. “Minimum Corinthium.” *Arctos: Acta Philologica Fennica* 36 (2002): 19–29.

Kansa, E., “4.2. Click Here to Save the Past.” In *Mobilizing the Past for a Digital Future: The Potential of Digital Archaeology*, 443–72. Grand Forks, ND: The Digital Press at the University of North Dakota, 2016.

Kansa, E., and S. W. Kansa. “Toward Slow Data in Archaeology.” Paper. Orlando, 2016. https://doi.org/10.6067/XCV8930W5N.

Kansa, E. C., S. W. Kansa, and B. Arbuckle. “Publishing and Pushing: Mixing Models for Communicating Research Data in Archaeology.” *International Journal of Digital Curation* 9, no. 1 (2014): 57–70. https://doi.org/10.2218/ijdc.v9i1.301.

Kaplan, L. G. “‘Writing Down the Country’: Travelers and the Emergence of the Archaeological Gaze.” In *Archaeology in Situ: Sites, Archaeology and Communities in Greece*, edited by A. Stroulia and S. B. Sutton, 75–108. Plymouth: Lexington Books, 2010.

———. “‘A Good Considerable Country Town’ Visions of a Greek Village in European Travel Narratives.” PhD Thesis. Philadelphia: University of Pennsylvania, 2001.

Kardulias, P. N. “Flaked Stone from Isthmia.” *Hesperia* 78, no. 3 (July 1, 2009): 307–46.

———. *From Classical to Byzantine: Social Evolution in Late Antiquity and the Fortress at Isthmia, Greece*. Vol. 1412. British Archaeological Reports-International Series. Oxford: Archaeopress, 2005.

———. "Architecture, Energy, and Social Evolution at Isthmia, Greece: Some Thoughts about Late Antiquity in the Korinthia." *JMA* 8 (1995): 33–59.

———. "Anthropology and Population Estimates for the Byzantine Fortress at Isthmia." In *The Corinthia in the Roman Period*, edited by T. E. Gregory, 139–48. Ann Arbor: Journal of Roman Archaeology, 1993.

Kardulias, P. N., T. E. Gregory, and J. Sawmiller. "Bronze Age and Late Antique Exploitation of an Islet in the Saronic Gulf, Greece." *JFA* 22 (1995): 3–21.

Keraudren, B., and D. Sorel. "The Terraces of Corinth (Greece)—A Detailed Record of Eustatic Sea-Level Variations during the Last 500,000 Years." *Marine Geology* 77, no. 1–2 (1987): 99–107.

Kersel, M. M. "Storage Wars: Solving the Archaeological Curation Crisis?" *Journal of Eastern Mediterranean Archaeology & Heritage Studies* 3, no. 1 (2015): 42–54.

Kissas, K. and W.-D. Niemeier, eds. *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistory until the End of Antiquity*. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

Knodell, A. R., T. C. Wilkinson, T. P. Leppard, and H. A. Orengo. "Survey Archaeology in the Mediterranean World: Regional Traditions and Contributions to Long-Term History." *Journal of Archaeological Research* 31, no. 2 (2023): 263–329.

Korka, E., and J. L. Rife, eds. *On the Edge of a Roman Port: Excavations at Koutsongila, Kenchreai, 2007–2014*. Hesperia Supplement. Princeton: The American School of Classical Studies at Athens, 2022.

———. "Systematic Excavations Undertaken by the Ministry of Culture and the American School of Classical Studies at Athens for Promoting the Roman Cemetery on the Koutsongila Ridge at Kenchreai." In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistoric Times Until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 285–95. Athenaia 4. Munich: Himler Verlag GmbH, 2013.

Kourelis, K. “Archaeology of Forced Migration in Greece: A Layered Pedagogy.” In *Migration, Displacement, and Higher Education: Now What?*, edited by B. Murray, M. Brill-Carlat, and M. Höhn, 151–162. Cham Switzerland: Palgrave Macmillan, 2023.

———. “Sites of Refuge in a Historically Layered Landscape: Camps in Central Greece.” *Change Over Time* 9, no. 1 (2020), 88–113.

———. “If Space Remotely Matters: Camped in Greece’s Contingent Countryside.” In *The New Nomadic Age: Archaeologies of Forced and Undocumented Migration*, edited by Y. Hamilakis, 215–226. London: Equinox, 2018.

Kourelis, K., and D. K. Pettegrew. “Washingtonia: An American Refugee Camp in Revolutionary Greece.” In *The Greek Revolution (1821–1829) Through American Eyes. A Bicentennial Traveling and Online Exhibition*, edited by T. Papademetriou and N. Ganson. 2021. https://www.greekrevolution.org/

Koutsoumba, D., and Y. Nakas. “Διολκος. Ενα Σημαντικο Τεχνικο Εργο Της Αρχαιοτητας (The Diolkos: A Significant Technical Achievement of Antiquity).” In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistory until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 191–206. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

LaMotta, V. M., and Schiffer, M. B. “Formation Processes of House Floor Assemblages.” In *The Archaeology of Household Activities: Dwelling in the Past*, edited by P. M. Allison, 19–29. London: Routledge, 1999.

Lampakis, G. “Χριστιανικαὶ Κεγχρεαί: Τοπογραφία τῶν Κεγχρεῶν.” In *Miscellanea di Archeologia, Storia, e Filologia Dedicata al Prof. Antonio Salinas nel XL Anniversario del Suo Insegnamento Accademico, 71–80*. Palermo: Stabilimento Tipografico Virzi, 1907.

Lawson, J. “The Roman Pottery.” In *The Laconia Survey 2: Continuity and Change in a Greek Rural Landscape. Archaeological Data*, edited by W. Cavanagh, J. Crouwel, R. W. V. Catling, and G. Shipley, 112–23. BSA Supplements 27. London: British School at Athens, 1996.

Leaf, W. “Corinth in Prehistoric Times.” *AJA* 27, no. 2 (June 1923): 151–56.

Lohmann, H. "Der Diolkos von Korinth—Eine Antike Schiffsschleppe?" In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistory until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 207–30. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

Lupack, S., S. A. Ross, A. Sobotkova, P. Hermankova, and P. Kasimi. "The Perachora Peninsula Archaeological Project: The 2020 Survey." *Mediterranean Archaeology* 34/35 (2021): 143–54.

Mailis, A. *The Annexes at the Early Christian Basilicas of Greece (4th–6th c.): Architecture and Function*. British Archaeological Reports-International Series 2312. Oxford: Archaeopress, 2011.

Mariolakos, I., and S. C. Stiros. "Quaternary Deformation of the Isthmus and Gulf of Corinthos (Greece)." *Geology* 15 (1987): 225–28.

McDonald, W. A, and G. R. Rapp, eds. *The Minnesota Messenia Expedition: Reconstructing a Bronze Age Regional Environment*. Minneapolis: The University of Minnesota Press, 1972.

Meeks, W. A. *The First Urban Christians: The Social World of the Apostle Paul*. 1st ed. New Haven: Yale University Press, 1983.

Megaw, A. H. S. "Archaeology in Greece 1962-1963," *Archaeological Reports* 9 (1963): 3-33.

Meyer, N. "Pottery Strategy and Chronotype." In *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*, edited by M. Given and A. B. Knapp, 14–16. Los Angeles, 2003.

———. "Finding Sites in Mediterranean Survey." *Journal of Mediterranean Archaeology* 35, no. 2 (2022): 143–68.

Meyer, N., and T. E. Gregory. "Pottery Collection, Pottery Analysis, and GIS Mapping." In *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*, edited by M. Given and A. B. Knapp, 48–52. Los Angeles, 2003.

Miller, S.G. "A Mosaic Floor from a Roman Villa at Anaploga." *Hesperia* 41 (1972): 332-54.

Millett, M. "Dating, Quantifying, and Utilizing Pottery Assemblages from Surface Survey." In *Extracting Meaning from Ploughsoil Assemblages*, edited by R. Francovich, H. Patterson, and G. Barker, Oxford 2000, 53–59.

———. "Pottery: Population or Supply Patterns? The *Ager Tarraconensis* Approach." In *Roman Landscapes: Archaeological Survey in the Mediterranean Region*, 18–26. Archaeological Monographs of the British School at Rome 2. London: British School at Rome, 1991.

———. "Field Survey Calibration: A Contribution." In *Archaeology from the Ploughsoil: Studies in the Collection and Interpretation of Field Survey Data,* edited by C. Haselgrove, M. Millett, and I. Smith, 31–37. Sheffield: Dept. of Archaeology and Prehistory, University of Sheffield, 1985.

Monceaux, P. "Fouilles et Recherches Archéologiques au Sanctuaire des Jeux Isthmiques, III, IV." *GazArch* 10 (1885): 205–14, 402–12.

———. "Fouilles et Recherches Archéologiques au Sanctuaire des Jeux Isthmiques, I, II." *GazArch* 9 (1884): 273–85; 354–63.

Moore, R. S. "A Decade Later: The Chronotype System Revisited." In *Archaeology and History in Roman, Medieval and Post-Medieval Greece: Studies on Method and Meaning in Honor of Timothy E. Gregory*, edited by W. Caraher, L. J. Hall, and R. S. Moore, 137–51. Aldershot: Ashgate, 2008.

Morgan, C. "The Late Bronze Age—Early Iron Age at the Isthmian Sanctuary." In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistory until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 247–50. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

———. *Isthmia: Excavations Volume VIII, The Late Bronze Age Settlement and Early Iron Age Sanctuary*. Princeton: American School of Classical Studies at Athens, 1999.

Murphy-O'Connor, J. "The Corinth That Saint Paul Saw." *The Biblical Archaeologist* 47, no. 3 (September 1, 1984): 147–59.

Nixon, F., E. G. Reinhardt, and R. Rothaus. "Foraminifera and Tidal Notches: Dating Neotectonic Events at Korphos, Greece." *Marine Geology* 257 (2009): 41–53.

Opitz, R. "Publishing Archaeological Excavations at the Digital Turn." *Journal of Field Archaeology* 43, no. sup1 (October 31, 2018): S68–82. https://doi.org/10.1080/00934690.2018.1505409.

Opitz, R. S., M. Mogetta, and N. Terrenato, eds. *A Mid-Republican House from Gabii*. Gabii Project Reports. Ann Arbor: University of Michigan Press, 2016.

Osborne, R. "Counting the Cost. Comments on David K. Pettegrew, 'Chasing the Classical Farmstead', JMA 14.2 (December 2001)." *Journal of Mediterranean Archaeology* 14, no. 2 (2001): 212–16.

———. "'Is it a Farm?' The Definition of Agricultural Sites and Settlements in Ancient Greece," in Wells, B., ed., *Agriculture in Ancient Greece*. Stockholm 1992, 21–28.

———. "Building and Residence on the Land in Classical and Hellenistic Greece: The Contribution of Epigraphy," *BSA* 80 (1985), 119–28.

Pallas, D. I. *Les Monuments Paléochrétiens De Grèce Découverts De 1959 À 1973*. Vatican: 1977.

———. "Ανασκαφή Ρωμαϊκής Επαύλεος Παρά Την Κορίνθων." *Praktika* 1955 (1955): 201–16.

Peacock, D. P. S, and D. F Williams. *Amphorae and the Roman Economy: An Introductory Guide*. London: Longman, 1986.

Peppers, J. M. "Three Pottery Deposits and the History of Roman Isthmia." In *The Corinthia in the Roman Period: Including the Papers given at a Symposium Held at The Ohio State University on 7-9 March, 1991*, edited by T. E. Gregory, Suppl. 8:113–29. Ann Arbor: Journal of Roman Archaeology, 1993.

Pettegrew, D. K. Archaeologies of the Early Christian World: History, Practice, Vision. New York: Oxford, in preparation.

———. *The Isthmus of Corinth: Crossroads of the Mediterranean World*. Ann Arbor: University of Michigan Press, 2016.

———. "Corinthian Suburbia: Patterns of Roman Settlement on the Isthmus." In *Bridge of the Untiring Sea: The Corinthian Isthmus from Prehistory to Late Antiquity*, edited by E. R. Gebhard and T. E. Gregory, 289–310. Hesperia Supplement 48. Princeton: The American School of Classical Studies at Athens, 2015.

———. "Survey Data and Experiments in Sampling." In *Pyla-Koutsopetria I: Archaeological Survey of an Ancient Coastal Town*, edited by W. Caraher, R. S. Moore, and D. K. Pettegrew, 49–68. American Schools of Oriental Research Archaeological Reports 21. Boston: The American Schools of Oriental Research, 2014.

———. "The Diolkos and the Emporion: How a Land Bridge Framed the Commercial Economy of Roman Corinth." In *Corinth in Contrast: Studies in Inequality*, edited by Steven J. Friesen, Sarah James, and Daniel Schowalter, 126–42. Leiden: Brill, 2013.

———. “The Diolkos of Corinth.” *AJA* 115, no. 4 (October 1, 2011): 549–74.

———. “Regional Survey and the Boom-and-Bust Countryside: Re-Reading the Archaeological Evidence for Episodic Abandonment in the Late Roman Corinthia.” Edited by Kostis Kourelis and William R. Caraher. *International Journal of Historical Archaeology. “Special Issue: The Abandoned Countryside: (Re)Settlement in the Archaeological Narrative of Post-Classical Greece”* 14, no. 2 (June 2010): 215–29.

———. “The End of Ancient Corinth? Views from the Landscape.” In *Archaeology and History in Roman, Medieval and Post-Medieval Greece: Studies on Method and Meaning in Honor of Timothy E. Gregory*, edited by W. Caraher, Linda Jones Hall, and R. S. Moore, 249–66. Aldershot: Ashgate, 2008.

———. “The Busy Countryside of Late Roman Corinth: Interpreting Ceramic Data Produced by Regional Archaeological Surveys.” *Hesperia* 76, no. 4 (October 1, 2007): 743–84.

———. “Corinth on the Isthmus Studies of the End of an Ancient Landscape.” Ohio State University, 2006.

———. “Counting and Coloring Classical Farms: A Response to Osborne, Foxhall and Bintliff et al.” *JMA* 15, no. 2 (2002): 267–73.

———. “Chasing the Classical Farmstead: Assessing the Formation and Signature of Rural Settlement in Greek Landscape Archaeology.” *JMA* 14, no. 2 (2001): 189–209.

Pettegrew, D. K., and W. R. Caraher. “High-Resolution Survey and the New Quest for the Byzantine Landscape: A Case Study from the Corinthia, Greece.” In *Beyond Icons: Theories and Methods in Byzantine Archaeology*, edited by D. B. Hedstrom, K. Kourelis, and W. R. Caraher. New York: Routledge, 2025.

———. “From Corinthian Twilight to the Busy Countryside. Remaking the Landscapes, Monuments, and Religion of the Late Antique Corinthia.” In *Korinth II: Das römische Korinth*, edited by C. Auffarth in collaboration with S. Krauter, 365–390. Civitatum Orbis Mediterranei Studia, Vol. 7. Tübingen: Mohr Siebeck 2023.https://www.mohrsiebeck.com/en/book/korinth-ii-das-roemische-korinth-9783161625466/

———. "Life in Abandonment: The Village of Lakka Skoutara, Corinthia." In *Deserted Villages: Perspectives from the Eastern Mediterranean*, edited by Rebecca Seifried and Deborah Brown Stewart, 269–317. Grand Forks: The Digital Press at The University of North Dakota, 2021.

Pettegrew, D. K., K. Kourelis, A. Sarvis, N. Poulopoulos, A. Shehigian, and K. Ganey. "Rediscovering Washingtonia: A Greek-American Refuge Colony on the Corinthian Isthmus." Paper. Chicago, 2024.

Pettegrew, D. K., T. E. Gregory, D. J. Pullen, R. Rothaus, and T. F. Tartaron. "The Eastern Korinthia Archaeological Survey." Dataset. *Open Context*. Open Context, 2021.

Philadelpheus, A. "Αρχαία έπαυλις μετά Νυμφαίου εν Λεχαίω της Κορινθίας." *ArchDelt* 4 (1918): 125–35.

Philippson, A. "Der Isthmos von Korinth. Eine geologisch geographische Monographie." In *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1–88. D. Reimer, 1890.

Plog, S., F. Plog, and W. Wait. "10 - Decision Making in Modern Surveys." In *Advances in Archaeological Method and Theory*, edited by M. B. Schiffer, 383–421. San Diego: Academic Press, 1978.

Pullen, D. J. "Agricultural Self-Sufficiency and Mycenaean Kalamianos on the Saronic Gulf." In *Country in the City: Agricultural Functions of Protohistoric Urban Settlements (Aegean and Western Mediterranean)*, edited by D. Garcia, R. Orgeolet, M. Pomadère, and J. Zurbach, 137–51. Oxford: Archaeopress, 2019b.

———. "If You Build It, Will They Come? Will They Stay? The Mycenaean Port Town of Kalamianos." In *Coming Together: Comparative Approaches to Population Aggregation and Early Urbanization*, edited by A. Gyucha, 215–38. Albany: State University of New York Press, 2019a.

———. "How to Build a Mycenaean Town: The Architecture of Mycenaean Kalamianos." In *Mycenaeans up to Date: The Archaeology of the North-Eastern Peloponnese : Current Concepts and New Directions*, edited by A.-L. Schallin and I. Tournavitou, 377–90. Stockholm: The Swedish Institute at Athens, 2015.

———. "The Life and Death of a Mycenaean Port Town: Kalamianos on the Saronic Gulf." *Journal of Maritime Archaeology* 8, no. 2 (2013): 245–62.

Pullen, D. J., and T. F. Tartaron, "Where's the Palace? The Absence of State Formation in the Late Bronze Age Corinthia." In *Rethinking Mycenaean Palaces II: Revised and Expanded Second Edition*, edited by M.L. Galaty and W.A. Parkinson, 2nd ed., 146–58. Los Angeles: Cotsen Institute of Archaeology, 2007.

Pullen, D. J., T. F. Tartaron, R. M. Rothaus, D. Nakassis, and A. Dill. "Patterns in the Later Prehistory of the Eastern Korinthia." Paper. Philadelphia, 2002.

Rabinowitz, A. "(Re)Imagining the Archaeological Archive for the Twenty-Second Century." In *Critical Archaeology in the Digital Age: Proceedings of the 12th IEMA Visiting Scholar's Conference*, edited by Kevin Garstki, 165–83. Digital Archaeology Series 2. Los Angeles: Cotsen Institute of Archaeology Press, 2022.

Rife, J. L. *Isthmia: Excavations Volume IX, The Roman and Byzantine Graves and Human Remains*. Corinth XX. Princeton: American School of Classical Studies at Athens, 2012.

Rife, J. L., M. M. Morison, A. Barbet, R. K. Dunn, D. H. Ubelaker, and F. Monier. "Life and Death at a Port in Roman Greece: The Kenchreai Cemetery Project, 2002–2006." *Hesperia* 76, no. 1 (January 1, 2007): 143–81.

Robinson, H. S. "Excavations at Corinth." *Αρχαιολογικον Δελτιον* 18 (1963): Chronika B1, 76-80.

Romano, D. G. "Romanization in the Corinthia: Urban and Rural Developments." In *Roman Peloponnese III. Society, Economy and Culture under the Roman Empire: Continuity and Innovation,* edited by A. D. Rizakis and C. E. Lepenioti, 155–72. Athens: Research Institute for Greek and Roman Antiquity, 2010.

———. "Roman Surveyors in Corinth." *Proceedings of the American Philosophical Society*, 150.1 (2006): 62–85.

———. "City Planning, Centuriation, and Land Division in Roman Corinth: *Colonia Laus Iulia Corinthiensis* and *Colonia Iulia Flavia Augusta Corinthiensis*." In *Corinth, the Centenary*, Corinth XX, edited by C. K. Williams II and N. Bookidis, 279–301. Princeton: American School of Classical Studies at Athens, 2003.

———. "Post–146 B.C. Land Use in Corinth, and Planning of the Roman Colony of 44 B.C." In *The Corinthia in the Roman Period*, edited by T. E. Gregory. Ann Arbor, MI: Journal of Roman Archaeology, 1993.

Romano, D. G, and N. L Stapp. "Corinth Computer Project: Internet Education." In *Archaeological Informatics: Pushing The Envelope. CAA2001. Computer Applications and Quantitative Methods in Archaeology. Proceedings of the 29th Conference, Gotland, April 2001*, edited by G. Burenhult and J. Arvidsson, 295–300. BAR International Series 1016. Oxford: Archaeopress, 2002.

Romano, D. G., and O. Tolba. "Remote Sensing and GIS in the Study of Roman Centuriation in the Corinthia, Greece." In *Interfacing the Past: Computer Applications and Quantitative Methods in Archaeology*, edited by H. Kammermans and Fennema, 457–63. Leiden: University of Leiden, 1996.

Rothaus, R. M. *Corinth, the First City of Greece: An Urban History of Late Antique Cult and Religion.* Leiden, 2000.

———. "Urban Space, Agricultural Space and Villas in Late Roman Corinth." In *Structures Rurales et Sociétés Antiques*, edited by Doukellis, P. N. and L. G. Mendoni, 391–96. Paris: 1994.

Rothaus, R., E. Reinhardt, and J. Noller. "Earthquakes and Subsidence at Kenchreai: Using Recent Earthquakes to Reconsider the Archaeological and Literary Evidence." In *Archaeology and History in Roman, Medieval and Post-Medieval Greece: Studies on Method and Meaning in Honor of Timothy E. Gregory*, edited by W. R. Caraher, L. J. Hall, and R. S. Moore, 53–66. Burlington, VT: Ashgate, 2008.

Rothaus, R., E. Reinhardt, T. Tartaron, and J. Noller. "A Geoarchaeological Approach for Understanding Prehistoric Usage of the Coastline of the Eastern Korinthia." In *Metron: Measuring the Aegean Bronze Age*, edited by K. P. Foster and R. Laffineur, 37–47. Liège, 2003.

Runnels, C. N., D. J. Pullen, and S. H. Langdon, eds. *Artifact and Assemblage: The Finds from a Regional Survey of the Southern Argolid, Greece. Vol. 1. The Prehistoric and Early Iron Age Pottery and the Lithic Artifacts*. Stanford: Stanford University Press, 1995.

Rutter, J. "Corinth and the Corinthia in the Second Millennium B.C.: Old Approaches, New Problems." In *Corinth XX. Corinth, the Centenary: 1896–1996*, edited by Charles K. Williams II and Nancy Bookidis, 20:75–83. Corinth: Results of Excavations Conducted by the American School of Classical Studies at Athens. Princeton: American School of Classical Studies at Athens, 2003.

———. "Some Thoughts on the Analysis of Ceramic Data Generated by Site Surveys." In *Archaeological Survey in the Mediterranean Area*, edited by D. R. Keller and D. W. Rupp, 137–42. British Archaeological Reports-International Series 155. Oxford: British Archaeological Reports, 1983.

Sakellariou, M. B., and N. Faraklas. *Corinthia - Cleonaea*. Athens: Athens Center of Ekistics, 1971.

Salmon, J. B. *Wealthy Corinth: A History of the City to 338 BC*. New York: Oxford University Press, 1984.

Sanders, G. D. R. "Landlords and Tenants: Sharecroppers and Subsistence Farming in Corinthian Historical Context." In *Corinth in Contrast: Studies in Inequality*, edited by S. J. Friesen, S. James, and D. Schowalter, 103-125. Leiden: Brill, 2013.

———. "Archaeological Evidence for Early Christianity and the End of Hellenic Religion in Corinth." In *Urban Religion in Roman Corinth: Interdisciplinary Approaches*, edited by D. N. Schowalter and S. J. Friesen, 419–42. Cambridge, MA: Harvard University Press, 2005.

———. "Problems in Interpreting Urban and Rural Settlement in Southern Greece, A.D. 365–700." In *Landscapes of Change: Rural Evolutions in Late Antiquity and the Early Middle Ages*, edited by N. Christie, 163–93. Aldershot: Ashgate, 2004.

———. "New Relative and Absolute Chronologies for 9th to 13th Century Glazed Wares at Corinth: Methodology and Social Conclusions." In *Byzanz Als Raum: Zu Methoden Und Inhalten der Historischen Geographie des Östlichen Mittelmeerraumes*, edited by K. Belke, F. Hild, J. Koder, and P. Soustal, 153–73. Vienna: Österreichischen Akademie der Wissenschaften, 2000.

Sanders, I., M. Yoo, and G. D. R. Sanders. "Landscapes of Home and Thereafter: The Condition, Educational Potential, and Natural Environment of Penteskouphi Hamlet." In *Deserted Villages: Perspectives from the Eastern Mediterranean*, edited by Rebecca Seifried and Deborah Brown Stewart, 209–68. Grand Forks: The Digital Press at The University of North Dakota, 2021.

Sarris, A. "Technical Report: Geophysical Prospection Survey at Kromna-Kesimia and Perdikaria as Part of the Eastern Korinthia Archaeological Survey (EKAS–2002)." Rethymnon, 2003.

Schiffer, M. B. *Formation Processes of the Archaeological Record*. Salt Lake City: University of Utah Press, 1996.

———. "Is There a 'Pompeii Premise' in Archaeology?" *Journal of Anthropological Research* 41, no. 1 (1985): 18–41.

Schofield, A. J. "Understanding Early Medieval Pottery Distributions." In *Landscapes from Antiquity*, edited by Simon Stoddart, 109–19. Cambridge: Antiquity Publications, 2000.

———. Ed. *Interpreting Artefact Scatters: Contributions to Ploughzone Archaeology*. Oxford: Oxbow Books, 1991.

Schon, R. "2.8. Seeding Experiments." In *Landscape and Interaction. The Troodos Archaeological and Environmental Survey Project, Cyprus. Volume 1: Methodology, Analysis and Interpretation*, edited by M. Given, A. B. Knapp, J. Noller, L. Sollars, and V. Kassianidou, 35–38. Oxford: Oxbow Books, 2013.

———. "Vox Clamantis in Campo: Further Thoughts on Ceramics and Site Survey." In *Our Cups Are Full: Pottery and Society in the Aegean Bronze Age. Papers Presented to Jeremy B. Rutter on the Occasion of His 65th Birthday*, edited by Walter Gauß, Michael Lindblom, Angus Smith, and James C. Wright, 231–41. Oxford: Archaeopress, 2011.

———. "Seeding the Landscape: Experimental Contributions to Regional Survey Methodology." Ph.D. Thesis, Bryn Mawr, PA: Bryn Mawr College, 2002.

Scranton, R. L., J. W. Shaw, and L. Ibrahim. *Kenchreai, Eastern Port of Corinth, Vol. I. Topography and Architecture*. Leiden: Brill Academic Press, 1978.

Seifried, R. M., and D. E. Brown Stewart, eds. *Deserted Villages: Perspectives from the Eastern Mediterranean*. Grand Forks: The Digital Press at The University of North Dakota, 2021.

Shennan, S. *Experiments in the Collection and Analysis of Archaeological Survey Data: The East Hampshire Survey*. Sheffield: Department of Archaeology and Prehistory, University of Sheffield, 1985.

Shipley, G. "The Survey Area in the Hellenistic and Roman Periods." In *The Laconia Survey 1: Continuity and Change in a Greek Rural Landscape. Methodology and Interpretation*, edited by W. Cavanagh, J. Crouwel, R. W. V. Catling, and G. Shipley, 257–337. BSA Supplements 26. London: British School at Athens, 2002.

Slane, K. W. "Corinth's Roman Pottery: Quantification and Meaning." In *Corinth, the Centenary*, Corinth XX, edited by C. K. Williams II and N. Bookidis, 321–35. Princeton: American School of Classical Studies at Athens, 2003.

———. "East-West Trade in Fine Wares and Commodities. The View from Corinth." *Rei Cretariae Romanae Fautorum Acta* 36 (2000): 299–312.

Slane, K. W., and G. D. R. Sanders. "Corinth: Late Roman Horizons." *Hesperia* 74, no. 2 (April 1, 2005): 243–97.

Snodgrass, A. M. A*n Archaeology of Greece: The Present State and Future Scope of a Discipline*. Berkeley: University of California Press, 1987.

Spon, J. *Voyage d'Italie, de Dalmatie, de Grèce et du Levant, fait es années 1675 et 1676*. Vol. II. Lyon: Cellier, 1678.

Stewart, D. R. *Reading the Landscapes of the Rural Peloponnese: Landscape Change and Regional Variation in an Early "Provincial" Setting*. Oxford: Archaeopress, 2013.

Stikas, E. G. "Anaskaphe Romaikou Nymphaiou Kai Palaiochristianikes Krenes Para to Lechaion Tes Korinthias." *Praktika* (1957): 88–94.

Strupler, N. "Re-Discovering Archaeological Discoveries. Experiments with Reproducing Archaeological Survey Analysis." *Internet Archaeology*, no. 56 (June 14, 2021). https://doi.org/10.11141/ia.56.6.

Sutton, R. F., Jr., J. F. Cherry, J. L. Davis, and E. Mantzourani. "Gazetteer of Archaeological Sites." In *Landscape Archaeology as Long-Term History*, edited by J. F. Cherry, J. L. Davis, and E. Mantzourani, 69–162. *Monumenta Archaeologica* 16. Los Angeles: University of California, 1991.

Sutton, S. B., ed. *Contingent Countryside: Settlement, Economy, and Land Use in the Southern Argolid since 1700*. Stanford: Stanford University Press, 2000.

Tartaron, T. F. "The Settlement at Kalamianos: Bronze Age Small Worlds and the Saronic Coast of the Southeastern Corinthia." In *Bridge of the Untiring Sea: The Corinthian Isthmus from Prehistory to Late Antiquity*, edited by E. R. Gebhard and T. E. Gregory, 25–38. Hesperia Supplement 48. Princeton: The American School of Classical Studies at Athens, 2015b.

———. "Late Bronze Age Architecture and Regional Dynamics at Korphos in the Corinthia." In *Mycenaeans up to Date: The Archaeology of the North-Eastern Peloponnese: Current Concepts and New Directions*, edited by Ann-Louise Schallin and Iphiyenia Tournavitou, 391–401. Stockholm: The Swedish Institute at Athens, 2015a.

———. *Maritime Networks in the Mycenaean World.* Cambridge: Cambridge University Press, 2013.

———. "Archaeological Survey: Sampling Strategies and Field Methods." In *Landscape Archaeology in Southern Epirus, Greece*, edited by J. R. Wiseman and K. L. Zachos, 1:23–45. Princeton: American School of Classical Studies at Athens, 2003.

Tartaron, T. F., and D. J. Pullen. "The Saronic Harbors Archaeological Research Project (SHARP): Two Seasons at Mycenaean Kalamianos." In *The Corinthia and the Northeast Peloponnese*, edited by K. Kissas and W.-D. Niemeier, 231–38. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

Tartaron, T. F., D. J. Pullen, and J. S. Noller. "Rillenkarren at Vayia: Geomorphology and a New Class of Early Bronze Age Fortified Settlement in Southern Greece." *Antiquity* 80 (2006): 145–60.

Tartaron, T. F., D. J. Pullen, R. K. Dunn, Lita Tzortzopoulou-Gregory, Amy Dill, and Joseph I. Boyce. "The Saronic Harbors Archaeological Research Project (SHARP): Investigations at Mycenaean Kalamianos, 2007–2009." *Hesperia* 80, no. 4 (2011): 559–634.

Tartaron, T. F., R. M. Rothaus, and D. J. Pullen. "Searching for Prehistoric Aegean Harbors with GIS, Geomorphology, and Archaeology." *Athena Review* 3(4) (2003): 27–36.

Tartaron, T. F., T. E. Gregory, D. J. Pullen, J. S. Noller, R. M. Rothaus, Joseph L. Rife, Lita Tzortzopoulou-Gregory, et al. "The Eastern Korinthia Archaeological Survey: Integrated Methods for a Dynamic Landscape." *Hesperia* 75, no. 4 (October 1, 2006): 453–523.

Tasinos, B. Th. "Αρχαία Κρώμνα." In *The Corinthia and the Northeast Peloponnese: Topography and History from Prehistoric Times Until the End of Antiquity*, edited by K. Kissas and W.-D. Niemeier, 251–61. Athenaia 4. Munich: Hirmer Verlag GmbH, 2013.

Tchalenko, G. *Villages antiques de la Syrie du Nord: le massif du Bélus à l'époque Romaine*. Paris: Geuthner, 1953.

Terrenato, N. "Sample Size Matters! The Paradox of Global Trends and Local Surveys." In *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, edited by S. E Alcock and J. F Cherry. Oxford: Oxbow Books, 2004.

———. “The Visibility of Sites and the Interpretation of Field Survey Results: Towards an Analysis of Incomplete Distributions.” In *Extracting Meaning from Ploughsoil Assemblages*, edited by G. Barker and R. Francovich. Oxford: Oxbow Books, 2000b.

———. “Surface thoughts: future directions in Italian field surveys.” In *The Future of Surface Artefact Survey in Europe*, edited by J. L. Bintliff, M. Kuna, and N. Venclová, 21–28. Sheffield: Sheffield Academic Press, 2000a.

Thomas, D. H. “Nonsite Sampling in Archaeology: Up the Creek without a Site?” Edited by G. W. Mueller. *Sampling in Archaeology* 1 (1975): 61–81.

Thompson, S. “Side-by-Side and Back-to-Front: Exploring Intra-Regional Latitudinal and Longitudinal Comparability in Survey Data: Three Case Studies from Metaponto, Southern Italy.” In *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*, edited by S. E Alcock and J. F Cherry, 65–85. Oxford: Oxbow Books, 2004.

Tsigkos, A. G. *Ιστορία των Εξαμιλίων*. Corinth: Ekdoseis Katagramma, 2020.

Tzortzopoulou-Gregory, L. “Remembering and Forgetting: The Relationship Between Memory and the Abandonment of Graves in Nineteenth- and Twentieth-Century Greek Cemeteries.” *International Journal of Historical Archaeology* 14, no. 2 (2010): 285–301.

———. “Cemeteries in the Countryside: An Archaeological Investigation of the Modern Mortuary Landscape in the Eastern Corinthia and Northern Kythera.” In *Archaeology and History in Roman, Medieval and Post-Medieval Greece. Studies on Method and Meaning in Honor of Timothy E. Gregory*, edited by W. R. Caraher, L. J. Hall, and R. S. Moore, 307–44. Burlington, VT: Ashgate Publishing Company, 2008b.

———. “Commemoration and Neglect in Modern Greek Consciousness: The Search for Identity in the Mortuary Landscape of Rural Greece. An Archaeological Study of Cemeteries in the Eastern Korinthia and Northern Kythera, Greece.” Ph.D. Thesis, Melbourne: La Trobe University, 2008a.

Tzortzopoulou-Gregory, L., and J. L. Rife. “Epilogue: Kyras Vrysi, Ayios Ioannis Prodromos, and Its Cemetery.” In *Isthmia: Excavations Volume IX, The Roman and Byzantine Graves and Human Remains*, 146–52. Princeton: American School of Classical Studies at Athens, 2012.

van Andel, T. H., and C. N. Runnels. *Beyond the Acropolis: A Rural Greek Past*. Stanford: Stanford University Press, 1987.

Verdelis, N. M. "Die Ausgrabung Des Diolkos Wahrend Der Jahre 1957–1959." *AM* 73 (1958): 140–45.

———. "How the Ancient Greeks Transported Ships over the Isthmus of Corinth: Uncovering the 2550-Year-Old *Diolcos* of Periander." *Illustrated London News* (October 19, 1957): 649–51.

———. "Der Diolkos am Isthmos von Korinth." *AthMitt* 71 (1956b), 51–59.

———. "Ἀρχαιολογικὴ ἐφημερὶς-χρονικά: Σύντομος ἔκθεσις περὶ τῶν διεξαχθεισῶν κατὰ τὸ 1957 ἀνασκαφῶν ὑπὸ τῆς ἐφορείας ἀρχαιοτήτων Δ' Περιφερείας (Ἀργολιδοκορινθίας); Συνέχισις τῆς ἀνασκαφῆς τοῦ Διόλκου." *ArchEph* (1956a): Chronika 1–3.

Vroom, J. *Byzantine to Modern Pottery in the Aegean - 7th to 20th Century: An Introduction and Field Guide*. Second Revised. Turnhout: Brepols, 2014.

———. *After Antiquity Ceramics and Society in the Aegean from the 7th to the 20th Century A.C.* Leiden: Leiden University Press, 2003.

Walbank, M. E. H. "What's in a Name? Corinth under the Flavians." *Zeitschrift Für Papyrologie Und Epigraphik* 139 (January 1, 2002): 251–64.

———. "The Foundation and Planning of Early Roman Corinth." *JRA* 10 (1997): 95–130.

Wheler, G. *A Journey into Greece by George Wheler, Esq., in Company of Dr. Spon of Lyons*. London, 1682.

Whitbread, I. K. "Clays of Corinth: The Study of a Basic Resource for Ceramic Production." In *Corinth, the Centenary 1896-1996*. Corinth XX, edited by C. K. Williams and N. Bookidis, 1-13. Princeton: 2003.

Wilkinson, M. D., M. Dumontier, I. J. Aalbersberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg, et al. "The FAIR Guiding Principles for Scientific Data Management and Stewardship." *Scientific Data* 3, no. 1 (2016): 160018. https://doi.org/10.1038/sdata.2016.18.

Willey, G. R. *Prehistoric Settlement Patterns in the Virú Valley, Perú*. Washington: U.S. Government printing office, 1953.

Williams, C. K. II, and N. Bookidis, eds. *Corinth: Results of Excavations Conducted by the American School of Classical Studies at Athens. Volume 20: Corinth, the Centenary 1896–1996*. Princeton: American School of Classical Studies at Athens, 2003.

Winther-Jacobsen, K. "Ceramic Assemblages and Material Connections in Late Roman North-Western Cyprus and Beyond." *Annual of the British School at Athens* 117 (2022): 353–91. https://doi.org/10.1017/S0068245422000065.

———. *From Pots to People: A Ceramic Approach to the Archaeological Interpretation of Ploughsoil Assemblages in Late Roman Cyprus*. Leuven: Peeters, 2010.

Wiseman, J. *The Land of the Ancient Corinthians*. Vol. 50. SIMA. Göteborg, 1978.

———. "A Trans-Isthmian Fortification Wall." *Hesperia* 32, no. 3 (September 1963): 248–75.

Wright, J. C., J. F. Cherry, J. L. Davis, E. Mantzourani, S. B. Sutton, and R. F. Sutton Jr. "The Nemea Valley Archaeological Project: A Preliminary Report." *Hesperia* 59 (1990): 579–659.

Yener, K. A., ed. *The Amuq Valley Regional Projects. Volume 1. Surveys in the Plain of Antioch and Orontes Delta*, Turkey, 1995-2002. Vol. 131. Oriental Institute Publications. Chicago: The Oriental Institute of the University of Chicago, 2005.

Zangger, E., M. E. Timpson, S. B. Yazvenko, F. Kuhnke, and J. Knauss. "The Pylos Regional Archaeological Project: Part II: Landscape Evolution and Site Preservation." *Hesperia* 66, no. 4 (1997), 546–641.