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Eastern Korinthia Archaeological Survey

A Field Manual for the 2001 Season

The Eastern Korinthia Archaeological Survey Project: A Field Manual for the 2001 Season

By T. Tartaron, T. Gregory, D. Pettegrew, B. Caraher, and D. Nakassis

Note to project participants. The purpose of this document is to explain briefly the goals of the project and the archaeological methods that will be used to address those goals. Reading through this manual will help you to understand the research design and the theoretical reasons for particular procedures, as well as details about the procedures themselves. Although you will learn far more by actually surveying fields in the Korinthian countryside, you must read this document (especially Section III) carefully before the EKAS 2001 season begins. If you have any questions about EKAS procedures after reading this document, please talk to the field director or team leaders. Also, we have not yet seen the exact terms of the permit that we expect from the Greek government. We will naturally have to follow the directions of the permit and these may require us to modify some of the procedures, described here, planned for the 2001 season. This is a normal situation in Greek archaeology.

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I. INTRODUCTION

The Eastern Korinthia Archaeological Survey (EKAS) has as its primary research orientation 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 world. The Korinthia was one of the most important centers of the Mediterranean from antiquity until modern times, and our project will allow, for the first time, an examination of questions that can only be posed by a multidisciplinary regional survey project. The results of this research will have a wide audience among those who seek to understand the long-term processes that affect economic and political change, as well as those interested in human impact on the physical landscape. We seek to make use of recent advances in regional survey methodology and to build upon them through innovative applications of geological science, geophysical studies, sampling strategies, and computer-based knowledge systems.

A. Archaeological Survey in Greece

The Eastern Korinthia Archaeological Survey developed from a now mature tradition of archaeological research known as *landscape archaeology*. Landscape archaeology seeks to study the coevolution of humans and the natural landscape; how society exploits and transforms the environment, and, in turn, how geography and environment restrict the modes of human existence. On the one hand, human presence in the landscape has resulted in the gradually changing appearance of the countryside. The landscape of Greece of today reflects millennia of human occupation. On the other hand, environmental, geographic, and climatic conditions, largely beyond the control of humans, have delimited the range of human activities for the different regions of Greece. Environmental and landscape changes, such as shifting sea levels, fluctuating rainfall, tectonic activity, and climactic changes, demanded adjustment and adaptation on the part of human culture. Humans in turn developed new technologies and ways of dealing with these ecological changes. This cycle of people affecting environment and environment limiting human existence continues through time, leaving traces on the modern landscape. Landscape archaeologists seek to illuminate these processes during and between different periods of the past. Landscape archaeology also concerns itself with non-material structuring of space, such as that embodied in a "sacred landscape" or a "landscape of memory." At present, increasingly holistic approaches to human landscapes of the past are being forged to meet the needs of projects that emphasize regional, rather than site-specific, scales of analysis.

Surface survey is the most important tool for landscape archaeology, for it illuminates human behavior at the regional level. The social landscape of the ancient world included both city and country. The basic political unit of the Greek world was the *polis* which best translates into English as "city-state." This included an urban center (*asty*) and its surrounding land (*chora*), often incorporating secondary towns and villages. Whereas we tend to think of cities only as urban centers, the Greek concept was that of the city plus its surrounding land as an integrated whole. Although the urban core of the *polis* is the focus of most ancient and modern literature about life in Classical Greece, the urban center could not exist without the agricultural and pastoral subsistence activity that took place in the countryside. Even rich urban dwellers owned land in, and derived most of their wealth from, the countryside. As one historian of Ancient Greece noted, "the Classical city was embedded in the countryside." One of the central aims of surface survey, therefore, is to study the remains of the countryside to provide a fuller picture of the entire range of human activities upon the landscape of a given region.

Archaeological surface survey emerged from several earlier traditions, including: (a) the accounts of early travelers (from ancient times onward) who searched classical lands for monuments of antiquity; (b) topographic and monument surveys during the nineteenth and twentieth centuries; (c) aerial reconnaissance carried out for military purposes during the First and Second World Wars; and (d) the growth of regionally-focused anthropological and archaeological studies in the Americas by Julian Steward and others, beginning in the 1940s.

The first important surface survey in Greece was the University of Minnesota Messenia Expedition (UMME), which began in the late 1950s under the direction of W. McDonald of the University of Minnesota. The survey aimed to discover new sites—particularly of the Late Bronze Age (Mycenaean) period—in the SW region of the Peloponnese. The project borrowed methodology from archaeological survey projects in other parts of the world (such as Mesopotamia and the Americas), which emphasized cultural systems within regions and borrowed from the disciplines of geology, geography, and botany, and earlier topographic survey work pioneered by archaeologists like Carl Blegen. The UMME project was important for Greek survey in that it replaced topographic survey with systematic survey and shifted survey's emphasis from individual sites to the entire countryside. The purpose of survey was no longer locating sites for excavation but in creating dynamic models of human-environmental interaction. By current standards, this survey was rather crude and biased in its methodology in that it was not representative in its treatment of the landscape. Nonetheless, all current archaeological surveys projects in Greece have inherited its regional perspective, systematic approach, and theoretical dispositions.

Archaeological survey projects have proliferated in Greece since the early 1980s and have improved the methodology of UMME in three main ways. Above all, surface survey has become more systematic and intensive. Teams of fieldwalkers arrayed at intervals of five to twenty meters systematically inspect every type of environmental zone within a region, regardless of where one expects to find archaeological material. The relatively close spacing of fieldwalkers produces a far more representative picture of human land use, for it allows detection of smaller habitations (e.g., farmsteads) and activity areas which leave much smaller artifact concentrations on the landscape. Second, surface survey in Greece has adopted a diachronic perspective, which means that researchers are interested in every period of human use of the land, from the prehistoric to the modern periods. It is no longer acceptable to only examine archaeological material from one period (e.g., the prehistoric) and ignore all others. Landscape archaeologists are interested in the exploitation of a region over time and, consequently, collect cultural material from every period. Finally, the emphasis in survey archaeology on human-landscape interaction has fostered an interdisciplinary approach involving natural scientists, geomorphologists, anthropologists, archaeologists, and historians. This has become especially important as archaeologists have recognized the complexity of the archaeological record and the need for interdisciplinary perspective in its interpretation.

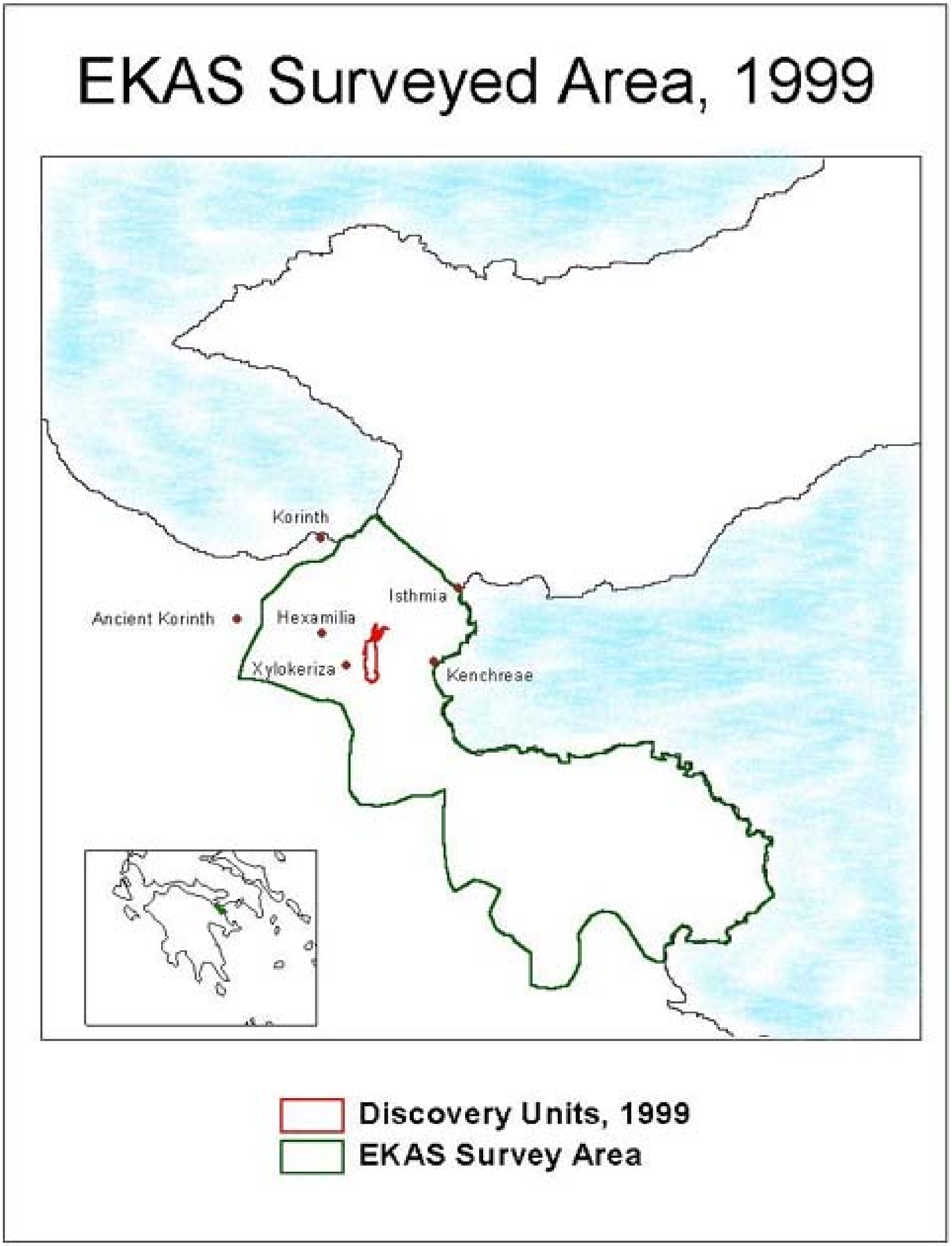
Landscape archaeology demands an understanding of the specific ways in which the environment has changed over time. Archaeologists now recognize that significant changes in the physical landscape (such as erosion, redeposition, coastline changes, etc.) have occurred in the long sweep of time since humans first occupied the Korinthia. Failure to take into account these changes introduces serious misunderstandings of the archaeological record and of the human activity that it represents. For example, an ancient settlement that today lies several kilometers inland may have originally lain along the shoreline. Or, a cluster of artifacts found at the base of a slope may have simply accumulated as a result of the natural processes of erosion. Prior to making inferences about the cultural significance of surface material, archaeologists need to consult geomorphologists who can determine the effect of natural processes on the location and form of the material.

B. The Eastern Korinthia Archaeological Survey

The Eastern Korinthia Archaeological Survey is heir to the archaeological methods and theoretical concepts developed since UMME in the 1960s. Systematic survey remains the best tool for understanding the interaction of ancient Korinth and its hinterland, and subsequently, the place of the Korinthia within Greece and the wider Mediterranean world.

The Eastern Korinthia Archaeological Survey project was preceded by two years of preparatory work as well as a number of small-scale surveys investigating some specific areas of the Korinthia over the past two decades. Intensive survey fieldwork was conducted in the summers of 1999 and 2000, and will continue for a final season of fieldwork during the summer of 2001; a season of analysis and study will occur in the summer of 2002.

We have selected the eastern Korinthia (Figure 1) as the focus of our study for several reasons. Unlike previous surveys, which have typically examined *either* urban or rural areas, we have selected a territory that represents a continuum from rural through suburban. While the area selected is still often within the viewshed of Akrokorinth, the dominating citadel of Korinth, it lies outside the direct urban zone of the ancient city. There are a number of known settlements, industrial and exploitative areas, and other sites in the eastern Korinthia. The area was heavily traveled in antiquity, providing both land and sea connections at the heart of mainland Greece: the Isthmus of Korinth, now bisected by the canal, provided a narrow land link between the Gulf of Korinth to the west (which opens into the Adriatic Sea) and the Saronic Gulf to the east (part of the Aegean Sea). Due to its advantageous position on this landbridge, Korinth held a preeminent position as both a commercial and cultural center. The Korinthia possesses considerable untapped potential to enhance our understanding of the complex processes of cultural evolution in an area that has been a crossroads between East and West since at least the first millennium BC. Cultural exchange between the Aegean, Asia Minor, and the Adriatic and central Mediterranean passed through a Greek, and often a Korinthian, filter. The eastern Korinthia, at the nexus of the territory, incorporates coasts on both bodies of water and the southern end of the isthmus. Much archaeological and topographic work has been done in specific spots (not counting the ancient city of Korinth itself), including excavations of a pan-Hellenic sanctuary at Isthmia (to the god Poseidon), a port at Kenchreai, and the two major prehistoric sites of Korakou and Gonia, as well as extensive studies of the built environment as it relates to historical sources. The long history of archaeological investigation in the area has yielded information about the prehistoric, Classical, and Late Roman periods. But we have limited understanding of the territory in which these sites are found, and the interconnections of the sites through this territory. Moreover, we are still lacking in our knowledge of road networks, settlement patterns, and the location of non-habitation activity areas within the region. Because of the extensive archaeological and historical sequence available for the Korinthia, we can firmly affix our study to a chronological framework covering the last 8000 years, from the establishment of Early Neolithic communities to the present.



EKAS Surveyed Area, 1999
Korinth
Isthmia
Ancient Korinth
Hexamilia
Xylokeriza
Kenchreae
Discovery Units, 1999
EKAS Survey Area

Figure 1. EKAS study area, showing area surveyed in 1999.

The eastern Korinthia consists of six natural drainage basins that cover an area of ca. 200 sq. km (Figure 1). This extensive region is under geomorphological study of Holocene (last 10,000 years) landscape evolution, including investigations of soil erosion, tectonics, coastline change, vegetational succession, mineralogy, raw-materials sourcing, and dating of deposits and landforms. Intensive archaeological survey is taking place, however, in a much smaller area. During the 1999 season, the intensive survey area was restricted to the Isthmia drainage basin, a total area of ca. 30 sq. km. This area is bounded by the Saronic Gulf on the east, Mt. Oneion on the south, the site at Perdikaria on the west, and the Isthmus on the north. A transect one half kilometer wide was surveyed in 1999 (Figure 2). This transect extends from the lower slopes of Mt. Oneion to the upper slopes of the Agios Demetrios ridge, a total area of 1.19 sq. kilometers. This coverage was accomplished by two teams over a period of 3.5 weeks. During the 2000 season, EKAS teams primarily continued survey work in the drainage basins north of Mt. Oneion, including the area between the Sanctuary of Poseidon at Isthmia and the prehistoric site of Gonia (Figure 3). Crews also tested a small area on the upper slopes of Mt. Oneion (0.5 square km) and another area to the west of the ancient harbor of Kenchreai (ca. 1.0 square km). During the 2001 field season, we will complete the work north of Mt. Oneion as well as target a few upland and coastal areas to the south and east in the Korphos region that are more isolated from the city of ancient Korinth and the main routes of passage (Figure 4). The goal in selecting these peripheral areas is to include a representative sample of the different geomorphological zones in the Eastern Korinthia, at least one small harbor on the Saronic Gulf, and a portion of the transportation corridors that connected the northeastern Korinthian territory with the areas to the south and east.

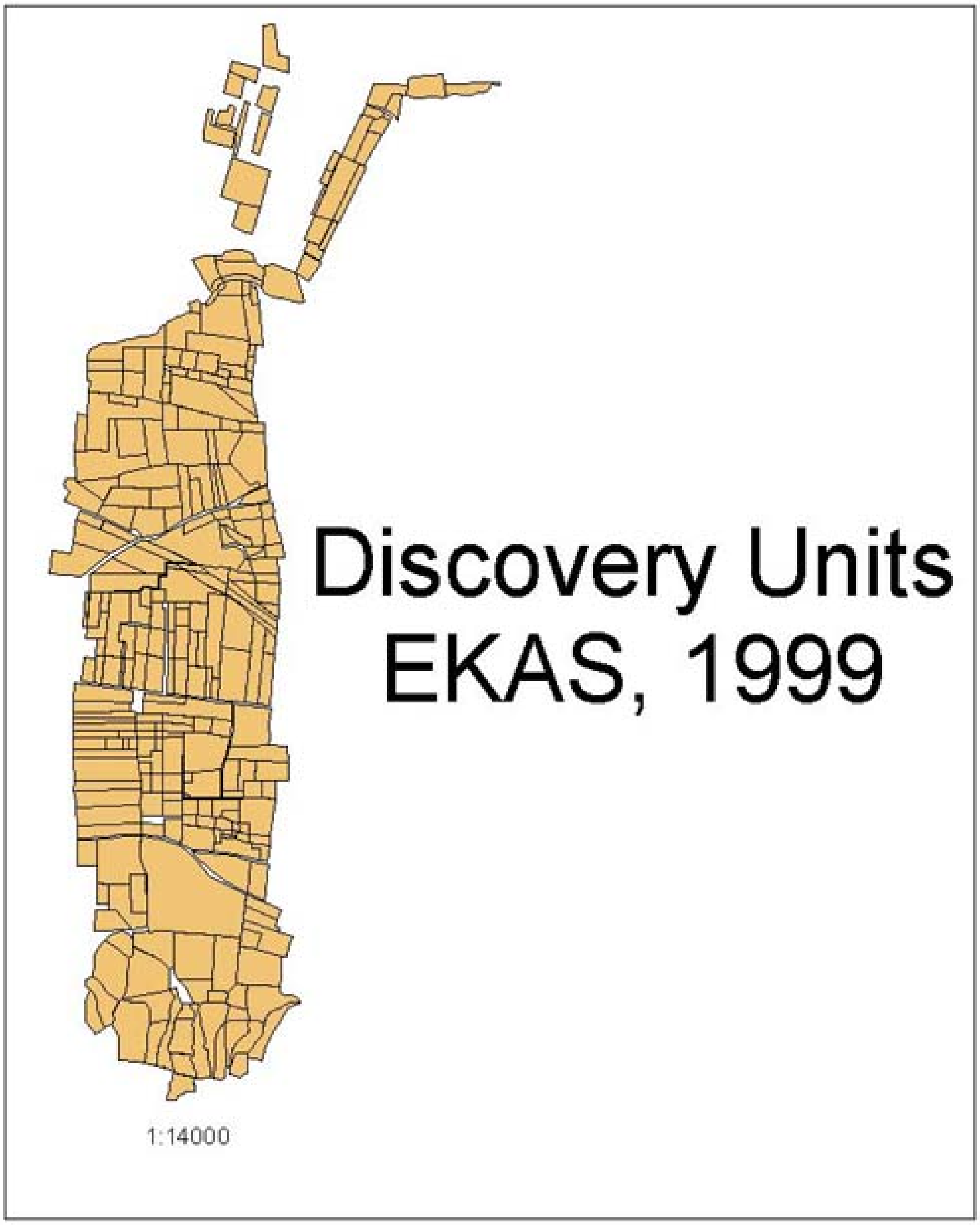


Figure 2: 1999 transect showing Discovery Units.

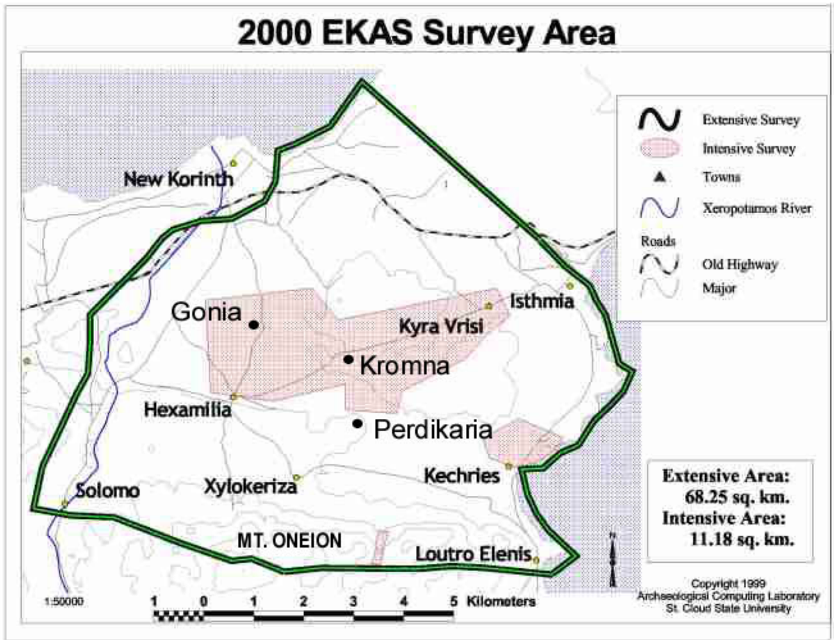


Figure 3. EKAS 2000 study area. The shaded sections represent areas surveyed intensively during the 2000 season.

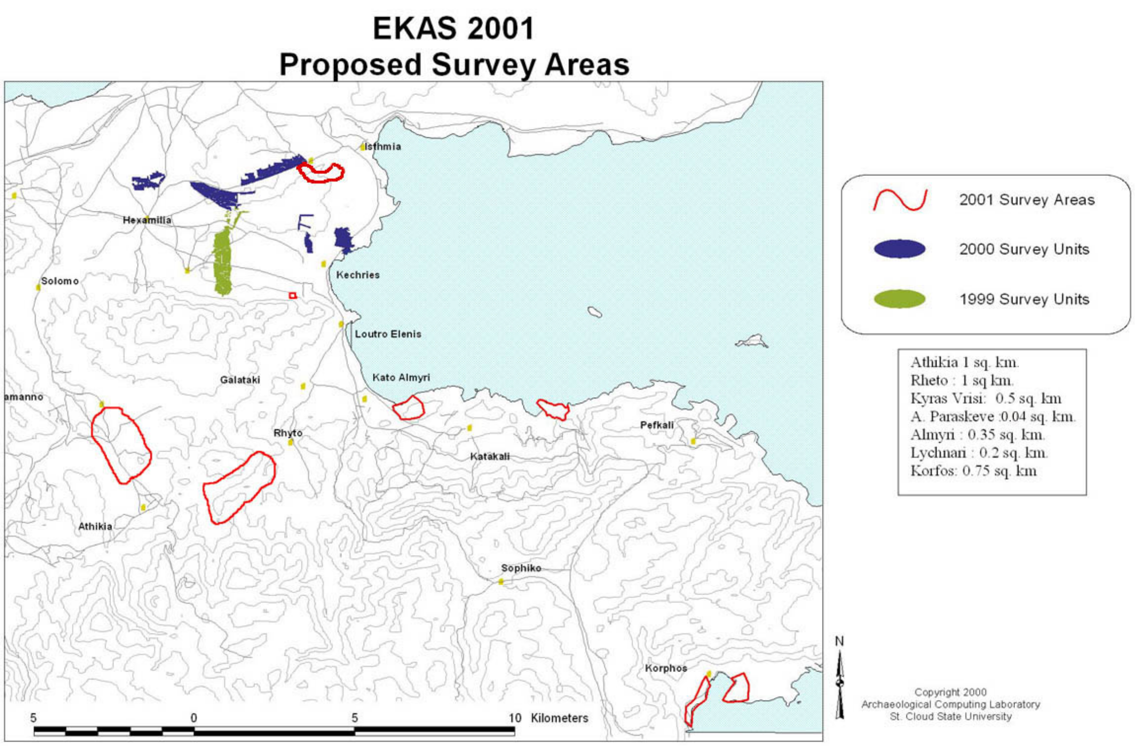


Figure 4. EKAS 2001 proposed study area.

C. Research Goals and the Distinctions of EKAS

The primary research goal of the Eastern Korinthia Archaeological Survey is to illuminate the relationship between Ancient Korinth, its suburban areas, and the surrounding countryside. This in turn will address the larger issue of how the Korinthia fits into the economic and social history of Greece and the Mediterranean world. All methodology selected by EKAS is to bear on these questions.

The EKAS project will contribute to landscape archaeology in Greece in a number of important ways. The distinctions of EKAS include:

- the only survey in Greece to focus explicitly on the hinterland of a major ancient city.
- the construction of full geomorphological study and functioning Geographical Information System (GIS) for the survey area *in advance* of the fieldwork, thus making a vast amount of information available to inform our survey work about the network of roads and settlements in the Korinthia. Patterns of human behavior of all description in urban centers, suburban areas, and the rural hinterland can be interrelated and analyzed during the survey process.
- the inclusion with each survey team of a geomorphologist, who works with the team to make choices about survey units based on an understanding of the depositional processes affecting the appearance of artifacts on the landscape. This reduces arbitrariness in delineating survey units and ensures that cultural material found together are revealed by the same natural and/or anthropogenic processes.
- the application of the "ChronoType" system (see below) to (a) artifact collection in the field and, and (b) classification of finds in the laboratory, which we expect will permit us to obtain a representative sample of the artifacts present in a given unit by observing only a percentage of the ground surface. The ChronoType system standardizes collection and interpretation and ensures the integrity of the archaeological data.
- the implementation of a “continuous consultation” survey mode, which brings together many areas of expertise in a real-time, interdisciplinary treatment of primary data collection.

The EKAS project is seeking to paint a picture of human use of past landscapes in the territory of the Eastern Korinthia. The archaeological survey data collected over the next five/six weeks will ultimately correspond to a great variety of past cultural phenomena: abandoned farmsteads and villas, roads and thoroughfares, sanctuaries, fortifications, overnight camping spots, storage facilities, and innumerable activities associated with agriculture, pastoralism, and resource exploitation. Taken altogether, this can be used to reconstruct 8,000 years of human-environment interaction. Thus, the effort that you put forth in walking fields at the base of Mt. Oneion is invaluable for telling the history of life in the Korinthian countryside. The smallest artifact helps to address the larger issue of how the rural Korinthians interacted and related to the city of Korinth, the area of Greece, and the rest of the Mediterranean world.

II. METHODOLOGY

Modern archaeological survey has developed complex methodologies in order to address the wide array of research questions of interest to the various parties involved. Thus, the staff of EKAS has created a highly complex set of methods designed to collect data of use to historians, geomorphologists, anthropologists, and survey archaeologists. The following section sets out the various methods employed in EKAS and their role in generating data related to the research questions posed in the Introduction. It behooves every member of the project to become as familiar as possible with the various methods of survey, analysis, and collection functioning often simultaneously in the field on a day-to-day basis.

A. Minimal Collection Strategy -- The Processing of Artifacts in the Field

EKAS uses a multiplicity of methods for collecting information; probably the most important of these, and the one that requires the greatest amount of time, is pedestrian survey, where field teams walk across the landscape in a systematic and regular fashion, recording information they see on the surface of the ground. The overarching strategy guiding teams in the field is the minimal collection strategy. This dictates that during surface survey, no artifacts are removed from the survey unit (i.e., "Discovery Unit" = "DU", see below) in which they are found.[1] Instead, fieldwalkers count various classes of objects—pottery, tile, lithics, etc., using clickers and tally sheets where necessary. In addition, each fieldwalker picks up one example of each different kind of artifact (see discussion below concerning the ChronoType system for details). The artifacts that are picked up by each fieldwalker are left in the Discovery Unit for subsequent description and analysis. Then, the processing teams evaluate the gathered artifacts *within* each survey unit and record the artifacts in accordance with ChronoType system (see below). The only areas not included in the minimal collection strategy are those selected as Localized Cultural Anomalies (LOCAs, see below). In these areas, artifacts may be collected and brought back to the laboratory at Isthmia for later study.

The rationale for the minimal collection strategy, and the benefits derived from it, may be illustrated in the following terms. There is much concern at present with the preservation and conservation of the surface archaeological record in Greece as elsewhere. In recent years, archaeologists have realized that simply collecting indiscriminately from all findspots is a short-sighted strategy. Until rather recently, the geomorphological mechanisms by which surface manifestations are revealed, concealed, and replenished have been poorly understood, and little thought has been given to the archaeological record that will be left to future generations of archaeologists, who will surely have at their disposal greatly refined tools for discovery and analysis. EKAS has responded to those concerns by cultivating a unique partnership with the local Greek archaeological authorities, aimed at developing a cultural resource management plan that balances the desire to preserve the archaeological landscape as much as possible, with the need to catalogue and study archaeological resources in the face of rampant modern development. The Greek Archaeological Service has also expressed its intention to more closely monitor the extensive fieldwork that surface survey entails; faced with this reality, we are keenly aware that local authorities will be more amenable to cooperation with a collection strategy that does not unduly disturb the environment or the archaeological record, nor overwhelm storage facilities with masses of material arriving from

[1] There are rare exceptions to this rule, primarily museum-quality artifacts such as coins, which by request of the Greek authorities are retained and submitted to the archaeological museum in Ancient Korinth.

widely scattered locations. This system will help ease the burden on museum storage space, particularly from the typically fragmentary, often unidentifiable pieces produced by surface survey. In countries like Greece that have long histories of intensive archaeological excavation, a storage crisis is at hand.

The minimal collection strategy, nevertheless, fulfills our requirements for robust data acquisition. The combination of artifact documentation of survey units by the processing teams (descriptions, drawings, photographs) and controlled collection of artifacts in selected LOCAs, yields data of sufficient quantity and quality to permit experts to study finds in the normal way, both during the survey and in subsequent years. And because less time is spent in collecting, bagging, and tagging artifacts, coverage of a greater area is possible.

The policy of not moving objects from their archaeological context presents unique opportunities for resurvey and repeatability experiments. Such experiments may be directed toward the changing distribution of surface artifacts on a seasonal, annual, or even intergenerational scale, or may be used to study the factors that influence the information that fieldwalkers collect under diverse field conditions.

The following two paragraphs describe the method of the processing team and the means by which they record data concerning ceramic artifacts processed in the field.

1. Processing Teams

The Processing Teams play an essential role in the minimal collection strategy. Processing data in the field obviates the need for the time consuming and destructive collection process, eliminates the need for extensive storage facilities, and provides a unique opportunity for dialogue between those who process artifactual data and those responsible for the initial identification of the artifact (see CCM, below). The processing teams, assembled by Daniel Pullen as part of the larger responsibility for identification, recording, and analysis, have the task of recording, photographing, and drawing objects picked up by the survey teams. Not all of these objects receive a full description; in many cases the processing teams simply records as much basic information as can be discerned about an artifact. All data recorded about specific artifacts, however, are recorded in accordance with the ChronoType system. There will be three processing teams in the field in 2001, staffed by artifact experts and illustrators. The processing teams operate in close concert with field teams engaged in discovery phase survey. Following behind the survey team, the processing team enters a survey unit once it is finished. Bagged artifacts may be described, measured, drawn, and photographed using a digital or standard camera. The processing team determines the extent of documentation for each object. Along with records kept by the team leader, the processing team's work forms the basis for inferences about chronology and function of activity in our survey area.

2. ChronoType System

This section is designed to explain what the ChronoType system is and how it works. Since this document has gone through numerous revisions and refinements, it is included here in its entirety.

The ChronoType System is:

a. Designed to simplify and improve the quality of the identification of pottery in the field, while facilitating our ability to analyze these data and thus arrive at speedy, high-quality publication.

b. Based on standard definitions of artifacts used by ceramicists in different period specializations. This means that the system is flexible and is not based on a specific definition of "wares" that may be appropriate for one period but not for others. In addition, the system allows multiple identifications, so that a scholar should be able to search the pottery using different definitions—thus, it should not matter for analysis if an amphora is identified by Dressel type, Bernice type, Williams and Peacock number, or on any other system: the database is set up to recognize these identities.

c. Based on the ability to assign a date (however broad) to each specific sherd. This date may be very specific (down to a decade or even less) or very broad (like "ancient," "Middle Neolithic," or "19th-century"). One of the things this means is that periods for the CT system must be agreed upon. It is possible to assign a more precise date to a specific sherd (in a free-form field), but the CT is tied to a specific period at the "resolution" that is appropriate to all sherds in that category. An example of the period scheme, from SCSP, is shown in the table below. One should note that the period scheme will inevitably be very complex (since it must allow for "overlapping" periods [e.g., Archaic-Classical or Medieval-Modern]; ultimately, this aspect may be revised by substitution of a system that lists a "starting" and an "ending" period for each CT). The chronological scheme can be modified infinitely, although it is preferable if one scheme is maintained for the duration of a single project.

d. Not necessarily based on "wares." The term "ware" is used differently by scholars working in different periods. For that reason it is avoided in the CT system: in some cases an individual CT may be what most scholars call a "ware," but in other cases it may be defined by decoration (e.g., types of transfer prints on the same "ware," types of combing on LR2 amphoras) or some other characteristic that has chronological significance.

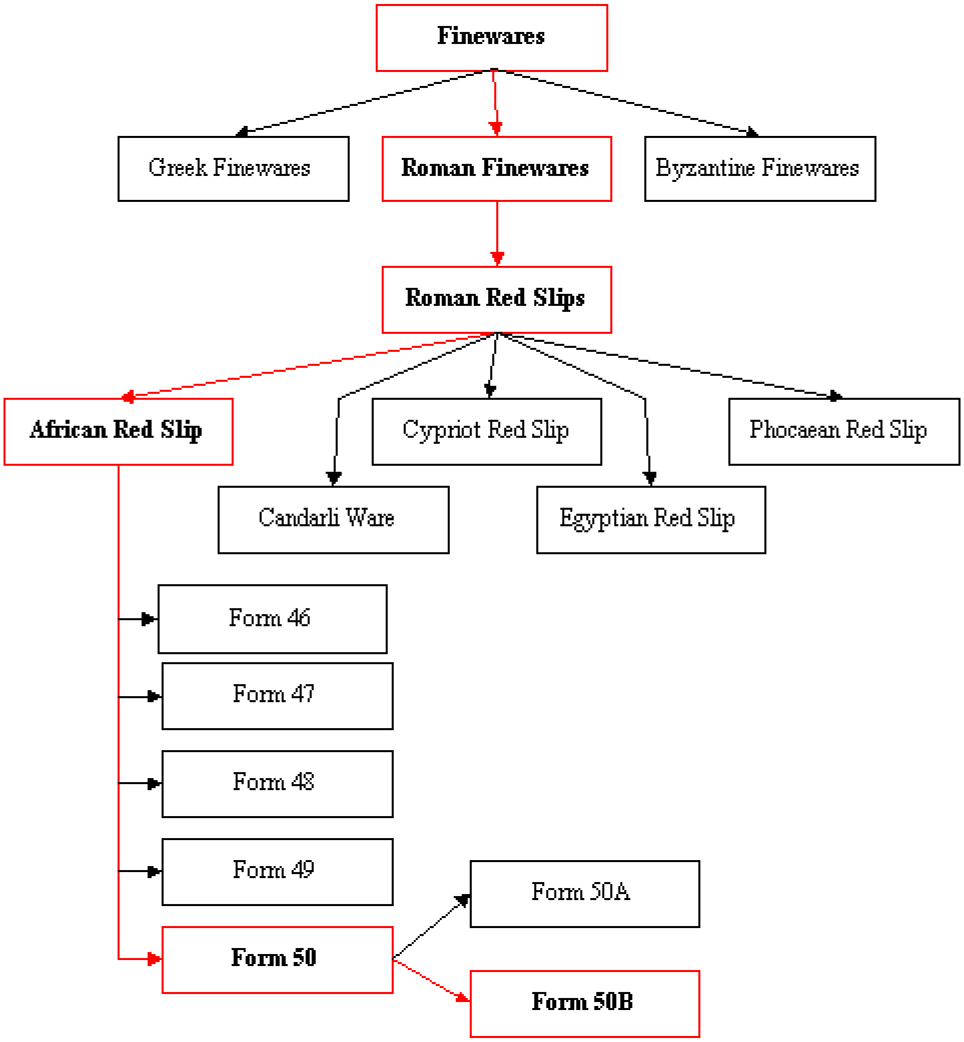
e. Is infinitely expandable. New CTs can be added to the system virtually instantaneously. Field teams can add new CTs in the field and these can be added to the system in the data-entry phase.

f. Is hierarchical. A primary feature of the CT system is that the CTs are all arranged in a hierarchical order based on

1) seven basic classes, based on immediately observable distinctions: pottery, stone/lithics, metal, glass, terra-cotta (non-pottery), shell/bone, and other;
2) these classes are further subdivided into subclasses: pottery, for example, is subdivided into seven subclasses: coarse ware, medium coarse ware, fine ware, table ware, kitchen/cooking ware, pithos, and tile. These subdivisions are further subdivided, potentially *ad inifinitum*.

Naturally these categories have to be defined carefully on the basis of observable distinctions.

An example of the hierarchy is as follows:



In this example the following hierarchy applies:

Class -- Pottery
Subclass -- Fineware
Subdivision -- Roman Fineware
Type -- Roman Red Slips
Subtype -- African Red Slip
Form -- Form 50
Subform -- Form 50B

g. Records "function" as well as chronology, since the definition of each ChronoType (and indeed most subclasses) is assigned to a particular broad function. The term "function" may be a misnomer since we cannot obviously tell precisely what use the objects had, but this rather divides the material into several mutually-exclusive categories, based on the characteristics of the CT and, often, its fabric.

h. Retains certain constants for each CT. Each CT will have one and only one of the following characteristics:

- period (chronology)
- place in the hierarchy of class, subclass, etc. (i.e., a given CT cannot be both coarseware and fineware; it must be one or the other)
- function

If the characteristics of a given artifact do not fit one of these characteristics, a new CT must be created.

i. Is primarily an analytic system, and it may be used with different field collection procedures. Nonetheless, the way the CT system is used in EKAS involves specific recording/collection procedures. There is a danger of confusing these two aspects of the CT system as used by EKAS, but the recording/collection procedures can be discussed briefly here.

First, the field procedures for EKAS seek to record information about both the quantity and the quality of the artifacts encountered in a given physical space (DU or part of LOCA). The "clicker" count carried out by the team members provides a very rough indication of the density of various types of artifacts (pottery, tile, lithics, etc.), but it does not allow chronological or functional differentiation (other than the gross categories just mentioned). The field artifact recording system used by EKAS is a compromise between the (impossible) goal of recording all artifacts and that of providing only a very impressionistic view of what is in a given space.

That compromise is based on the principle that fieldwalkers will pick up all artifacts they encounter, with the important exception that they will ignore artifacts that duplicate ones that each walker has already picked up. By a "duplicate" we mean that the artifact is the same in terms of a) material (color, thickness, coarseness, etc.); b) shape and/or body part; and c) decoration (slip, glaze, etc.). What this means is that each fieldwalker will pick up only one example of an otherwise undiagnostic red, coarse body sherd (or a coarse, buff body sherd, etc.), but will pick up each fragment of a black-glazed pyxis that represents a different body part. The processing team will make decisions as to whether, indeed, some of the gathered items are repetitive from the same fieldwalker, but will record multiple examples of the "same" CT if these come from different walkers (this can be done simply by indicating the number of sherds in a "batch" associated with a given CT). The goal of this system is to provide a statistically valid way to measure the types and the number of artifacts observed on the ground as the team passes through. This measurement will not, of course, be precise, but it does provide systematic evidence that allows comparison across the survey area and is far superior to a simple impressionistic statement that there was a "lot" of classical pottery in a given DU.

Periods

period	period_abbr	approximate dates
Preceramic Age	PC	+6300
Palaeolithic	PAL	+8600BC
Mesolithic	MES	8600-6300BC
Ceramic Age	CA	6300BC-AD2000
Ancient	A	6300BC-AD600
Prehistoric	PR	6300-1050BC
Neolithic	N	6300-3200BC
Neolithic, Middle	NM	5000-4500BC
Neolithic, Late	NL	4500-4000BC
Neolithic, Final	NF	4000-3200BC
Neolithic, Final-EH I	NE	4000-2750BC
Bronze Age	BA	3200-1050BC
Early Bronze Age	EB	3200-2050BC
Early Bronze Age-Middle Bronze Age	EBMB	3200-1650BC
Early Helladic I	EH1	3200-2750BC
Early Helladic I-II	EH12	3200-2250BC
Early Helladic II	EH2	2750-2250BC
Early Helladic III	EH3	2250-2050BC
Middle Bronze Age	MB	2050-1650BC
Late Bronze Age	LB	1650-1050BC
Late Bronze Age-Classical	LBC	1650-323BC
Middle Helladic-Late Helladic I	MHLH1	2050-1400BC
Late Helladic I-IIA	LH12A	1650-1420BC
Late Helladic II	LH2	
Late Helladic III	LH3	
Late Helladic IIIA	LH3A	
Late Helladic IIIA-B	LH3AB	1420-1200BC
Late Helladic IIIB	LH3B	
Late Helladic IIIC	LH3C	
Late Helladic IIIC-S	LH3CS	1200-1050BC
Post-Prehistoric	PPR	1050BC-AD2000
Ancient Historic	AH	1050BC-AD700
Protogeometric-Hellenistic	PGH	1050-31BC
Protogrometric-Archaic	PGAR	1050-500BC
Protogeometric	PG	1050-700BC
Geometric	G	800-700BC
Geometric-Archaic	GAR	800-500BC
Archaic	AR	700-500BC
Archaic-Classical	ARC	700-323BC
Archaic-Hellenistic	ARH	700-31BC

period	period_abbr	approximate dates
Classical	C	500-323BC
Classical-Hellenistic	CH	500-31BC
Hellenistic	H	323-31BC
Hellenistic-Early Roman	HRE	323BC-AD250
Roman	RO	31BC-AD700
Roman, Early	RE	31BC-AD250
Roman, Late	RL	AD250-700
Roman-Medieval	ROM	31BC-AD1800
Roman-Medieval, Early	ROME	31BC-AD-1200
Ancient-Medieval	AM	7000BC-AD1800
Medieval	M	AD700-1800
Medieval, Early	ME	AD700-1200
Medieval, Late	ML	AD1200-1537
Medieval, Ottoman/Venetian	MO	AD1537-1800
Medieval-Modern	MS	AD700-2000
Modern	S	AD1800-2000
Modern, Early	SE	AD1800-1960
Modern, Present	SX	AD1960-2000
Unknown	UNK	

B. Survey Units -- Methodologically Defined Space

The following sections will explain the basic units for the collection of data and some of the primary methods used by the field teams when they first encounter artifacts in the field. This section is organized according to unit type (DU, LOCA, EDU). Generally, the method by which archaeologists study a given space defines that space; consequently this section is divided according to type of space as defined methodologically.

1. Discovery Units - Intensive and Systematic

Our mandate is to cover the territory described in the introduction in a *systematic* and *intensive* way. By systematic, we mean that the places that we walk in the countryside are chosen according to a deliberate strategy, with more or less uniform (and therefore internally comparable) techniques of coverage. Because we cannot hope to inspect every meter of the Eastern Korinthia in a few field seasons, we must attempt to draw meaningful conclusions about the entire region from a carefully selected sample of survey units. The sampling strategy is set out, in part, to examine significant sections of every ecological zone: for example, the mountains, the hillsides, the rolling territories, and the flat plains. Our goal is to use the information in the sampled areas to draw conclusions about the broader survey universe (e.g., the whole of the eastern Korinthia). In the survey units that we generate by our sampling scheme, walkers spaced at ten-meter intervals transect the unit in parallel lines, observing in a standard two-meter-wide swath of the surface. For these reasons, we may call our survey *systematic*. In the past, many surveys in Greece have been unsystematic; for example, those that involved one or more persons simply walking around the countryside, or that involved searching specific locations (e.g., defensible hills) or manifestations (e.g., standing monuments) at the expense of others. This is not to suggest that such undertakings have been useless; far from it, but it has been shown that systematic surveys, particularly those that are also *intensive*, have far greater success in capturing a relatively complete picture of life in the past for a given region.

Our survey is also *intensive*, which means that we will walk at close spacing, normally 10 meters between walkers. At this interval, most concentrations of artifacts that are exposed on the surface may hypothetically be detected. Only the smallest artifact concentrations lying within the eight-meter interval between fieldwalkers' fields of view ("swaths" in EKAS terminology) go uninspected. A survey using a walking interval of 50 meters would not be considered intensive, though it could be considered systematic if that interval was uniformly applied. For purposes of interpreting surface information, the data generated by intensive surveys has been considered superior to those obtained by non-intensive surveys.

The DU is the basic spatial unit of our systematic and intensive survey. In Discovery Units, we attempt to assess the presence of material evidence of past human activity. It is worth emphasizing that these units are exploratory. We may speak of the DU as the methodological unit of the *discovery phase* of the survey. In this phase, our principal aims are (1) to detect broad patterns of the presence and absence of human activity; (2) to evaluate the varying density of material remains and advance preliminary hypotheses concerning its significance; (3) to characterize where possible the chronology and function of the material remains; (4) to collect environmental information as a contextual framework for the archaeological material; and (5) to define anomalous concentrations of material that correspond to what are traditionally called "sites," but for which we have created the term "Localized Cultural Anomaly (LOCA)." The purpose of the discovery phase is *not* to examine or analyze in great detail the remains within the DU, but rather to collect basic data over a very broad swath of the landscape. When "anomalous" concentrations of material remains are perceived, a LOCA is typically declared and a second phase of more detailed and precise analysis is initiated (see below).

Fieldwalkers carry out a number of data collection activities. The most obvious of these involves walking survey units in which they discover, count, and attempt to identify artifacts and other evidence of human activity. In addition, there are several ancillary procedures that supplement the primary data collected. Each fieldwalker receives comprehensive instruction in the field, but the following sections describe these procedures and their purposes.

Our method of DU walking is as follows. The crew is arrayed at a spacing of 10 meters between walkers. Each walker is equipped with two tally counters (clickers), a compass, and a number of pin flags or flagging tape. At the team leader's signal, walkers proceed in parallel lines from one end of the DU to the other. Each walker observes the ground surface *in a two-meter swath only*. That is, the range of surface observation is one meter to the walker's right and one meter to the left. It is important that the walker resist the temptation to observe or wander beyond this swath, as it wastes time and alters our estimates of area viewed in non-measurable ways.

All observed artifacts larger than a thumbnail are to be counted. Under normal circumstances, one tally counter should be used for pottery and the other for bricks and rooftiles. Every piece of pottery or tile larger than a thumbnail that appears in the two-meter swath should be counted. Occasionally, this procedure may be altered to fit the range of materials present in the DU. For example, a DU in which the primary cultural material is flaked stone may necessitate the use of a tally counter to record counts of this material. The team leader will advise you of any changes to the normal counting policy. In addition to counting, certain objects should be picked up and placed in the plastic bag that each fieldwalker will carry while surveying. The system for picking up these objects is based on the "ChronoType" system described above—essentially based on the idea that objects that are "unique" to an individual fieldwalker in each DU are gathered (see section on ChronoType, above). This system seeks to avoid needless duplication of finds while recording every kind of fabric and body shape, thus providing a rough but nonetheless statistically valid relationship between the numbers and kinds of objects on the ground and what is recorded by the processing team (see below). Other gathered objects include a selection of tiles with finished edges, lithics, and coins. All objects that are gathered in plastic bags by each fieldwalker for each DU are placed together in one artifact bag in the northeast corner of the DU. If there are many artifacts gathered from the DU, obviously more than one DU artifact bag is necessary. Team members place a tag in each bag that specifies the team number, the date, the DU number, and the number of artifact bags for the DU (e.g., 1 of 3 bags). An orange flag will be placed as a marker next to the bag.

At the conclusion of walking the unit, the team fills out a DU form, on which many attributes of the DU are documented. This activity involves the team leader meting out a variety of tasks to members of the crew. The exact organization of this work is determined by the team leader, but the main tasks may be summarized. Each DU form has three pages: Page 1, general information, location, and survey procedure; Page 2, land cover, visibility, and land use; Page 3, features and course of action. The pages may be separated and given to individual crew members to complete. The team leader trains fieldwalkers to collect these data, and resolves questions or issues that arise.

2. Localized Cultural Anomalies (LOCAs)

In the course of surveying Discovery Units, survey teams frequently encounter clusters of archaeological material, or isolated but recognizable architectural features (such as sections of wall or agricultural installations), that are insufficiently documented by fieldwalking alone. The recognition, investigation, and classification of these concentrations are a reflection of a project's theoretical orientation toward the spatial aspects of human behavior, and the ways in which behavior is preserved in surface deposits. The traditional concept of the "site," thought to be easily recognizable by a dense clustering of artifacts and definable spatial limits, has become increasingly problematic in terms of methodology (how to define and delineate against a continuous carpet of artifacts) and conceptualization (what past behaviors does a "site" represent?). A great achievement of intensive survey has been the development of approaches to the study of the kinds of activities that leave less clustered or less dense remains, among them shorter-term habitation, hunting, pastoralism, agriculture, and tool manufacture.

Because "site" is such a loaded term, and archaeologists seem unable to agree on what it means, more neutral terms have sometimes been created to deal with anomalous, non-random scatters of cultural materials. Our term is *Localized Cultural Anomaly (LOCA)*. The elements of this term help explain the concept: 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. Because LOCAs often represent material remains associated with past settlements, sanctuaries, and activity areas, they are integral to the project's overall goals about illuminating the relationship of the Korinthia with the city of Ancient Korinth and the broader Mediterranean world.

LOCAs are designated by the team leader in consultation with the field coordinator, the geomorphologists, and fieldwalkers, based on the principles embodied in the LOCA concept. This is not always a simple matter, as it requires the recognition of material patterns that may be complex or subtle. Typically, the designation of a LOCA relies on 1) the detection of a higher density of one or more classes of artifacts (e.g., Classical blackslipped pottery, or obsidian bladelets) relative to densities of the same artifact classes in adjacent units on the landscape; and 2) clear and definable boundaries to the artifact scatter. Examples of LOCAs include a Medieval tower, a dense concentration of miniature votive vessels, a scatter of obsidian bladelets in a small area, and a tomb cut into the side of a hill. Ultimately, the determination of a LOCA is a subjective process that reflects the interests and research goals of the participants of the project.

Certain tools have been developed to assist the team leader in making decisions on LOCAs. The most important of these is Continuous Consultation Mode survey (CCM; see below), which ensures that experts are available in the field for consultation. In addition, a LOCA Evaluation Matrix has been developed to help archaeologists consider the many variables that influence the understanding of cultural anomalies that are found in the countryside. The LOCA Designation and Initial Assessment Form is designed to operationalize the LOCA Evaluation Matrix by providing an initial analysis of artifact clusters when they are encountered in the field. The form pulls together critical information about the cultural and geomorphological characteristics of the artifact scatter and helps the EKAS staff to make subsequent decisions about how to approach and study the LOCA. The discovery team, the geomorphologists, and the field processing team all contribute data to the form and each has a role in deciding how the LOCA is to be investigated.

EKAS 2001
LOCA EVALUATION MATRIX

Archaeological	**Density Relative to Adjacent Units** • sharp breaks in density: site edges or marked falloff? • isolated concentration?	**Artifact Clustering** • continuous carpet (clustering low)? • highly concentrated in discrete foci (clustering high)? • mixed (carpet with peaks)?	**Extent of Concentration** • delimitable within single DU? • extends into multiple DUs?	**Absolute Artifact Quantity** • variable threshold for different classes of artifact/feature • expected supply of durable artifacts for particular periods
	Periodization • single event? • single-period scatter? • evidence for multiperiod exploitation?	**Concentration Size by Period** • scatter extents discrete by period, material? • complete mixing of periods, material types?	**Material Type** • pottery • architectural ceramics • chipped stone • ground stone • architectural stone • other	**Characterization** • standing architecture • other nonportable feature • artifact scatter • artifacts + nonportable features

Geomorphological	**Agent of Exposure on Surface** • plowing • erosion • stream action • bulldozing • other	**Evidence for Artifact Displacement: Natural** • gravity • erosion • uplift/subsidence • stream action • land movement • other	**Evidence for Artifact Displacement: Anthropogenic** • in situ • soil/sediment brought in • manuring • bulldozing • plowing • soil removed • looting • other	**Topography** • slope • sharp breaks in topography • hilltop • valley • flat, level • stream • coastline
	Modern Land Use			

When field teams encounter anomalous artifact concentrations or archaeological features in the field, the team leader makes a decision, based upon the elements of the LOCA Evaluation Matrix, to carry out a cursory evaluation of the LOCA and fill out the LOCA Designation and Initial Assessment Form. This form includes a map, based on the aerial photographs the team carries, showing the apparent boundaries of the LOCA and providing artifact density counts and other information helpful in determining the nature of the scatter and its potential importance. At this point, the artifact cluster and/or feature(s) is designated as an N-LOCA (Nominated LOCA) until the geomorphologist and the field processing team complete the form and confirm the cultural significance of the designated area. At this point the area is referred to as a LOCA. The senior staff meet to discuss the Initial Assessment form and the recommendations of the field teams; if a consensus is reached, the artifact scatter is designated as an official LOCA and may be investigated further, depending upon its significance for the project goals. If the EKAS project is not able to further study a LOCA, the Initial Assessment Form at least provides basic standardized information for each LOCA.

Once designated, LOCAs are subjected to more intensive methods of field investigation than are Discovery Units. The overarching principle in investigating LOCAs is that because they vary widely in terms of material, size, complexity, terrain, and other aspects, we must be flexible in recognizing that the treatment we extend to a scatter of stone tools, for example, must be quite different from that used to gather data on the site of a Roman villa. With this in mind, we develop a strategy for each LOCA that reflects its particular characteristics. One of the field teams will engage primarily in LOCA investigations in 2001. This team will be versatile in developing a range of appropriate strategies. According to the terms of our permit, we expect to make collections of artifacts from some LOCAs and not to collect from others. Because the methods of walking, counting, and collecting will be quite different from those for DUs, you will receive careful instruction as required.

In principle, we hope to investigate each LOCA as soon as possible after its discovery, because surface scatters are often ephemeral in nature, i.e., under threat from a variety of natural and anthropogenic agents. Nevertheless, the actual lapse in time from discovery to LOCA investigation depends on a number of variables. There is first a need to prioritize LOCAs in terms of their significance and the risks they face in terms of destruction or loss of information. Certain LOCAs may be unique for their function, period(s) of activity, or other characteristics, and thus of highest priority for detailed documentation. Imminent threats to LOCAs from development or natural processes such as erosion or burial are also strong considerations in the priority for investigation. In addition, developing an appropriate field strategy for a LOCA takes time, and the more complex the LOCA, the more time is likely required for planning. Finally, logistical matters of scheduling the LOCA team must be considered.

To some extent, the LOCA team will experiment with different methods of LOCA survey. In principle, a grid will be superimposed over the entire LOCA, such as a grid composed of 10m × 10m squares (100 sq m). These squares become sampling units within the LOCA, allowing us to gain very fine spatial control over the locations of artifacts within the LOCA. For some LOCAs, samples may be recorded or collected from all squares, while in others only a selection of the sample squares will be investigated. It is very important to point out that in accordance with our permit, we will not actually collect and remove artifacts from every LOCA. Instead, we must request permission from the archaeological authorities to make collections from LOCAs of particular importance.

In 1999, we completed one LOCA investigation to experiment with methods. At the complex prehistoric and historical site of Perdikaria, we superimposed a grid composed of 10m × 10m squares over the extent of the main artifact scatter. A sampling circle of 5 square meters in placed in the middle of the square, giving a 5% areal sample. The required diameter of the circle was 1.26 meters, measured by means of a string attached to a stake placed at the center of the circle. Within the sampling circle, all artifacts larger than a thumbnail were brought to the center of the circle. The field processing team followed after the LOCA team to carry out a ChronoType analysis of the artifacts. The LOCA documentation was supplemented by topographic mapping, photography, GPS readings, and geomorphological description. Other types of characterization, including architectural drawings and geophysical prospection, were planned but not carried out in 1999.

The results of this experiment allowed us to refine our LOCA methods to develop more effective approaches and acquire better data. In 2000, we adopted modified LOCA investigation methods based on the grid concept, but flexible enough to accommodate the specific needs and conditions prevalent in each case. The development of new approaches to documenting and analyzing surface archaeological sites will continue in the year 2001.

Because many LOCAs include visible architecture (tombs, cuttings in rock, standing walls, etc.), an important part of LOCA documentation is the recording of such remains through measured drawings, photographs, and detailed descriptions.

3. Extensive Discovery Units -- Extensive Survey

Besides the main focus on intensive survey and LOCAs, some degree of extensive survey will be implemented in the 2001 season. The reasons for this are a) to provide some degree of coverage for areas that cannot be examined using the intensive method, and b) to target some high-probability or problematic areas that will otherwise not be covered. In addition, extensive survey may provide important tests for some of the predictive models that are being developed by the project.

Extensive survey, as carried out by EKAS, may be viewed as a similar process to intensive survey except that the coverage is less intensive. However, many of the extensive investigations are designed to generate a kind of data that is not directly comparable with intensive survey data. In any case, the extensive survey will be systematic, with careful records kept about the degree of intensity. In a certain sense, the extensive survey will be like thin “probes” sent out into unknown territory.

The extensive survey, like intensive survey, will be based on geomorphological principles, that is, each EDU (Extensive Discovery Unit) will be defined in geomorphological terms and, ideally, a geomorphologist will take part in all EDU exploration. The EDUs will be marked on the topographic maps, using the same techniques as the regular DUs and the same forms will be used. The major difference between intensive and extensive survey is that the extensive team will be small – normally made up of the team leader, an assistant, and a geomorphologist. The geomorphologist will lay out the survey unit boundaries, while the team leader and assistant will survey the units, using varying team spacing (often 10-m spacing over one swath through a unit, leaving the rest of the unit unsurveyed). The extensive team will also carry out all the artifact processing for the units.

C. Geomorphology and the Survey

Geomorphology is the study of the landscape and the processes that have created and shaped it. This includes both natural processes, such as tectonic shifts (earthquakes) and alluvium (erosion), as well as anthropogenic (human-based) processes. From the outset, geomorphology has been integrated into the EKAS project design on all levels, from the selection of the survey area, to the methods adopted for field walking, to the eventual analysis and interpretation of data obtained in the survey. The area subjected to geomorphological analysis comprises approximately 360 sq. km, encompassing the survey area in a broad series of basins. The definition of the survey area in terms of those basins has allowed the geomorphological and archaeological work to proceed hand-in-hand. A geomorphological survey of the area, which has already commenced and will continue alongside the archaeological survey, provides maps of landforms and soils that influence the selection of survey tracts, the way tracts are treated in the field, and the interpretation of archaeological data obtained there.

The modern surface, especially in a region that has experienced considerable natural (e.g., tectonic) and anthropogenic (e.g., modern development) change, may reflect complex processes that obscure the relationships between artifact distributions and the surfaces upon which they are found. For example, the widespread practice of grading fields by bulldozing might confound our efforts by cutting away ancient surfaces and deposits, mixing soils and sediments and their contents, and burying the modern surface in unrelated fill. Another common practice is the transport of soil from one place to another, along with whatever cultural material the soil might contain.

A basic principle of placing our survey tracts on the landscape is that they be defined by *landforms*, for reasons of depositional context, rather than according to other criteria that are typically used in survey. Among the traditional methods is the long transect (without subunits within it) stretched out over the landscape without regard for topography, terrain, or depositional history. Designed to avoid judgmental placement and to provide a statistically valid sample, this method would certainly fail to avoid the problem of artifact mixing in the Korinthia. Even tracts defined according to units of modern land use (e.g., the agricultural field), apparently homogeneous in terms of topography, visibility, and modern land use, have been observed to often comprise several landform units, and are by no means immune to the effects of bulldozing, soil transport, and other processes. The EKAS solution then is to define survey units (Discovery Units) by geomorphological principles, ensuring that transects never cross geomorphological boundaries and belong to the same formation context. For this reason, survey units are generally small, and are assigned based on soil changes, drainage conditions, slope, or obvious human activities (e.g., bulldozing or terracing).

An important innovation of EKAS is the attachment of a trained geomorphologist to each survey team. The survey geomorphologist's most important tasks are to map the landforms within the survey area, and to work directly with team leaders to lay out Discovery Units that respect the landform principle. On a day-to-day basis, the geomorphologist is present in the field to consult with the survey team and to alert the team leader to processes that may profoundly affect the interpretation of artifact scatters, or the lack of them. With the benefit of this collaboration, the team will avoid creating units from which artifacts from unrelated contexts are collected together, and thus a meaningful basis for interpretation of the survey results will be preserved.

D. Experimental

The EKAS project is currently conducting experiments to improve our understanding of the affect of a variety of conditions on survey results. Landscape archaeologists have increasingly recognized that what is discovered through survey is not always representative of what is actually present. For example, dense clusters of rain-washed artifacts are much more obtrusive and visible than scattered random artifacts which are highly encrusted with a thin limestone patina. Fieldwalkers will recognize an over-proportionate amount of highly obtrusive artifacts while the discovery of artifacts in areas of low density are often matters of chance. Recently, field projects in Greece have incorporated experimental components to test the conditions which effect artifact recognition during survey as well as the investigative technique and sampling strategy. How well do humans recognize cultural material when 50% of the surface is covered with vegetation, or when there is a high density of pebble and gravel? Further, how does the pace of field walking affect identification? Will a pace twice as fast decrease recognition by half? The questions are important ones as they inform how much fieldwalkers are recognizing as they survey fields.

During the 1999 EKAS season, Robert Schon and the experimental team began conducting a series of experiments to test these questions. In the seeding experiments, a team of researchers carefully planted potsherds in specific positions along a fifty-meter tract and plotted their positions on a plan. All potsherds were photographed, analyzed, and described before their placement. Two kinds of potential survey conditions were tested. In the first, artifacts were placed in identical positions in a tract with 50% visibility and a tract with 100% visibility. How much would weeds and grain stubble hinder recognition? In a second group of experiments, a tract with high background disturbance was tested against a tract where there were few visual distractions. How would artifact recognition differ between the two conditions? Participants walked these tracts and flagged all artifacts which they saw one meter to either side of their path. These experiments were carried out in 1999 and the data are currently under analysis. When Rob's analysis is complete, we should know more about how conditions such as vegetation cover, artifact type and appearance, crew fatigue, angle of sunlight, and background confusion affect the rate of artifact recovery. If we know the recovery rates over a broad range of conditions, we will have a better sense of the total range and quantity of material, not only in swaths we inspected, but also in those we did not. We should have some preliminary conclusions to offer this summer.

During the 2001 field season, the LOCA / experimental team will continue to address these important issues and also carry out experiments that test the efficiency of certain sampling methods for LOCAs and the ChronoType system. The following is only a summary of some of the experiments that we will conduct this summer.

Experiment	Purpose
1. Geomorphic Unit Efficacy	Demonstrate the utility of the GU concept
2. Efficacy of Processing Artifacts in Field	Compare ChronoType classification results in dirty and clean artifact states
3. Field Identifications	Measure long-term effects of minimal collection strategy vs. large artifact collections, in terms of a) identification and representation of artifact types; and b) preservation of cultural heritage
4. Efficacy of ChronoType as a Collection Strategy	Test whether artifact pickup or collection according to ChronoType principles generates representative samples of artifact types
5. Establishing Corrected Artifact Densities (for ChronoType and Aggregate Counts)	Develop methods and algorithms for calculating adjusted artifact densities, extrapolated from the samples we obtain. This continues Rob's work in 1999 of testing artifact recovery over a wide range of field conditions.

A detailed plan for the experiments is currently being drawn up, and will be available in Greece.

E. Geographic Information Systems

A Geographic Information System (GIS) is integral to EKAS project goals and used in every phase of the project. The system is based primarily on the ESRI suite of software, including ArcInfo, ArcView, etc. The survey GIS is a multi-functional tool that allows the integration of multiple data sets, including topographic, environmental, geomorphological, and cultural data that are continuously updated during the course of the project. Aerial photographs, satellite imagery, and topographic data were entered into the database prior to the 1999 season, and now serve as the principal data sets for locating and georeferencing the environmental and cultural data obtained through survey.

The GIS should not be considered merely a mapping tool (although it serves that purpose), but rather a means to integrate and evaluate diverse data sets. It serves to make diverse and large quantities of information available to the project members in a georeferenced and queryable manner. Thus, survey tracts (DUs), site locations, roadways, landuse information, landform data, and other information will all be available as separate or related bodies of information. The GIS system allows us to compare data in overlay format, and thereby to interpret the relationship between human activities and the landscape.

The GIS is also instrumental in allowing the different specialists of the project access to and understanding of the work of their colleagues, and streamlines the execution of an interdisciplinary project. For example, geomorphological data collected in the field are updated on a daily basis and field team leaders have access to these data directly, which in the past would have required meeting directly with the geomorphologists. Use of the GIS also allows for correlation and scheduling ease of project components, since the induction of data into the GIS allows different specialists to visit discrete locales at different times yet still share information effectively. Portions of the GIS will be made available via the World-Wide Web in incremental stages during the project and in published format after its completion.

The development of a complete GIS is a substantial undertaking and a research agenda in its own right. The sophisticated use of GIS in Mediterranean archaeology is still in its infancy and the project's system is one of the first to draw upon this tool utilizing an integrated approach. The creation of the GIS also allows analysis and modeling based on multiple variables in quantities impossible to analyze with more traditional methods.

F. Diachronic Analysis and Modern Period Survey

EKAS has adopted a diachronic approach to archaeological survey, which dictates (technically) that all periods receive equal treatment and produce data equally suited for analysis. While in some cases equal treatment of cultural material can be achieved through identical methodology, (e.g. as in the case, say, of Classical and Byzantine artifacts), the modern period demanded an alternative methodological approach to present equally suitable material for analysis. This is primarily due to the preponderance of cultural material from the modern period, the wide variety of identifiable features still present in the landscape, and the limited tradition of this type of approach in survey archaeology. Furthermore, the modern period survey has several unique research questions linked to discrete moments in the history of the region and associated with issues concerning the state of the modern archaeological landscape and CRM in the modern Korinthia.

The Modern Period in the EKAS is defined as the period from the formation of the Modern Greek State in 1827 until the present. Until very recently, the Modern Period has been of little interest, if at all, to traditional practitioners of Greek archaeology, whose main concerns have been associated with studies of the more distant past. Thus, a realization of the significance of modern components in comprising a distinct chronological period to be investigated in its own right is a relatively new phenomenon. In the last decade, and as a result of an increase in the number of regional surveys adopting a diachronic, landscape approach to archaeology, pre-modern and more recent cultural components (post-medieval to present) are now being incorporated within such projects, bringing discussion of the cultural landscape up to the present. Archaeological surveys which have included a modern component within their research design have usually focused, however, on evidence of "traditional" and recently-abandoned settlements, seasonal structures, as well as agricultural land use. We are pleased that EKAS is the first regional survey in Greece to fully integrate the Modern Period within the wider survey fieldwork system, by designing, refining, and applying a set of methods for modern data collection to be carried out by the survey field teams. Given the logistical complexity inherent as a result of the vastness of modern data, these data will be collected in such a way as to avoid overwhelming the system and slowing down the in-field-process, and on the basis of their usefulness and compatibility with the data collected for all other periods in investigating the primary questions of the EKAS research agenda.

Research Agenda

The theoretical considerations relating to the modern period centre around the following key issues:

1. The direction of trade and communication in the Eastern Korinthia during the modern period. Was the Eastern Korinthia tied to Korinth as a major distribution centre, or did it react independently with outside interests (such as Athens)?

2. The impact in the Eastern Korinthia of the following events:
   a) the overthrow of Ottoman rule and the founding of the modern Greek State in 1827;
   b) the founding of Modern Korinth in 1858
   c) the opening of the Korinth Canal in 1893
   d) the two World Wars and the civil war;
   e) the construction of the National Highway in the 1960s
   f) the junta during 1967-1974;
   g) the return of democracy in 1974 and the rise of a socialist government in 1981;
   h) Greece's membership in the European Union.

3. An investigation of the role of archaeology in modern Greek Society: how archaeology in general, and EKAS more precisely, impacts on the lives of the locals in the eastern Korinthia, its significance in terms of the heritage value of the area, and its contribution to environmental considerations and more precisely to Cultural Resource Management (CRM).

Modern Field Methodology

Information relating to the modern period will be collected and recorded by the fieldwalkers in the same manner as for all other periods. Fieldwalkers are required to observe modern feature types (buildings, agricultural fields, structures, walls churches, dump sites, industrial facilities, etc.) and record them on the DU recording forms. They are also required to include all modern ceramics and glass fragments (other than window glass) in their counts and recording, and examples of these should be picked up in the same manner as for artifacts of all other periods so they can be assessed by the processing team. These data recordings should allow for the retrieval of groups of information and the subsequent analysis of these in terms of their location and spatial distribution after they are entered in the database at the end of the day. DUs with large concentrations of modern artifactual material (especially ceramics and glass) and significant feature types, which are recognized by the fieldwalkers to contain important information relevant to the main research questions above, should be assigned a LOCA status and investigated in an appropriate manner, depending on the LOCA's size and character. The artifactual analysis will be complemented by an investigation of the relevant written records – both historical and archival-- as well as oral information from the local inhabitants.

CRM and Public Archaeology

The Eastern Korinthia Archaeological Survey (EKAS) is an interdisciplinary project that includes detailed examination of the contemporary landscape. Such an examination not only includes a traditional archaeological study of the material culture during the last two centuries, but also considers the human aspect of the present cultural landscape, including contemporary indigenous perceptions of heritage, history and national identity, and the threat and impact of modern development on the cultural landscape.

Traditionally, such considerations are undertaken within the sphere of Cultural Resource Management (CRM) and cultural heritage studies focusing on issues of conservation and preservation of sites and materials. In Greece, such issues normally fall within the purview of the Archaeological Service, the Department of Conservation, and the Department of Restoration, all three branches of the Greek Ministry of Culture. And this is done usually in salvage operations or in areas known to be “archaeologically important.” In general, foreign research, including regional studies, has deliberately disengaged itself from issues of CRM, claiming that its focus is purely academic and “scientific,” thus concentrating on the acquisition of information and knowledge on the past, through the use of rigorous, hypothetico-deductive methods. Considering the impact of postmodernism and other major changes, EKAS on the other hand, argues that “scientific” archaeology is not incompatible with, or even free of broader social issues related to heritage and ownership of the past, and therefore makes an attempt to integrate these issues within its wider research agenda.

The approach proposed by EKAS should not be confused with suggesting any direct involvement in CRM -- this is entirely the domain of the Greek Ministry of Culture and its administrative bodies. Rather, the approach is concerned with identifying, recording and analysing the way archaeological material (be it sites, monuments, or surface scatters) is perceived and interacted with by individuals and groups in terms of its cultural significance or heritage value, including values other than archaeological, at the local, regional and national level.

In terms of identifying concerns of national importance with regards to the conservation of the cultural heritage of the region, EKAS proposes to carry out this research by consulting with local representatives of the corresponding branches of the Greek Archaeological Service in the Korinthia (D’Ephoreia of Prehistoric and Classical Antiquities, the ST’ of Byzantine
and Post-Byzantine Antiquities, and the A’Eforeia for Modern Monuments).

In terms of regional and local notions on development and heritage related issues, EKAS will seek the co-operation of representatives from State administration (Nomarchia Korinthias) and local administration (various Demoi within the Nomos), as well as local residents.

EKAS proposes to begin this research during the 2001 EKAS field-season,with the following objectives:

1. identifying the cultural resource as documented by the Greek Archaeological Service and creating an electronic inventory (using GIS) with spatial capabilities for the Eastern Korinthia.

2. identifying key areas within the survey area targeted for large-scale development (highway/railway construction, residential, industrial development).

3. investigating the potential impact of such development on the cultural resource and the necessary measures (if any) undertaken by the developers in protecting it.

4. investigating the impact of small-scale development (house construction, farming, etc.) undertaken by individuals (usually local residents) on the cultural resource.

5. identifying possible areas of conflict with regards to development and heritage management between developers, local residents and the Greek Archaeological Service.

G. Continuous Consultation Mode

EKAS has developed a new conception of the acquisition of primary data in surface survey, in which interdisciplinary discourse is brought to the field in real time. The two guiding principles of our method of data collection are a minimal collection strategy, and a "continuous consultation mode" of data collection.

EKAS has formulated a new model for staffing field teams and walking survey units, which is based on the concept of real-time interdisciplinary consultation, and designed explicitly to accommodate the kind of fuzzy logic modeling described below. Our combined years of carrying out archaeological surveys on several continents have suggested to us certain fundamental problems in the way field teams are staffed, and in the way data are collected and shared among colleagues in projects that are advertised as interdisciplinary.

Beginning in 1997, EKAS archaeologists, geomorphologists, and GIS experts worked side-by-side in preparing basic data, including geomorphological mapping and induction of data for a comprehensive GIS. This in-field collaboration among experts in all relevant disciplines continues as the foundation of our fieldwalking methods. We may characterize our fieldwalking model as the acquisition of primary field data by archaeologists, geomorphologists, GIS experts, artifact experts, archaeological illustrators, and others, simultaneously and in continuous consultation.

The composition of the discovery team is derived from this model, typically:

- archaeologists: a team leader and archaeologists, among them at least one expert each in prehistoric, historical, and modern material;
- geomorphologists: a senior geomorphologist and a graduate student intern;
- artifact processing team: illustrators and experts in prehistoric and historical artifacts;
- a recorder, whose job is to record discussions among staff members;
- graduate and undergraduate student interns: experienced fieldwalkers.

The survey unit proceeds in the following fashion. The team leader guides fieldwalkers in a Discovery Unit investigation (as described above), while senior archaeologists, geomorphologists, and others consult among themselves and with the field team. The processing team sweeps in behind the field team, joining the consultation as the field team finishes its work. The recorder's role is similar to that of a stenographer, creating a document of the interactions, ideas, and opinions of the experts for later reference and archival purposes. In essence, this mode of operation might be likened to an in-field seminar.

The benefits of continuous consultation survey are potentially enormous. This method was conceived to facilitate a fuzzy logic approach to data acquisition and analysis. Although precise counts and measurements of phenomena within the survey unit are made, a great deal of flexibility is introduced for making adjustments to survey locations and sampling strategies, and for debating the meaning of cultural materials within the context of the natural and social-cultural landscape. The impact on the quality of data obtained in survey is perhaps most remarkable. The coordinated input of individuals who have worked together in cross-disciplinary efforts for years in the Korinthia produces a profound awareness and understanding of all the variables that have created the archaeological record as we discover and document it. The advantages of this approach may be illustrated with a characteristic example. A difficult assignment for team leaders is the designation of LOCAs within a general background scatter of material; this challenge is especially daunting in the eastern Korinthia, as certain parts of our survey area are covered with a relatively continuous carpet of artifacts. In continuous consultation survey, the critical mass of expertise is applied to sorting out patterns of chronology and density, thus removing the responsibility for key decisions from a single person, and enhancing the confidence that we may attach to the archaeological document we produce.

Other benefits positively impact time and effort costs. Continuous consultation survey works well with the minimal collection strategy. The time saved in dealing with artifact collections in DUs, and in laboratory processing of vast numbers of artifacts, allows greater attention to the archaeological record itself. Because we are not able to remove objects from DUs, the laboratory has come into the field in the form of the processing team. The artifact experts on this team are able to observe first-hand the surface contexts of the finds they are expected to describe. Indeed, with the entire survey effort present in the field, EKAS avoids the duplication of time and effort required in making additional trips to the field to explain to colleagues how and where data were obtained, and largely eliminates the common situation in which key staff members never see large parts of the survey area.

H. Conclusions

We believe that the EKAS survey methodology anticipates future directions in survey archaeology in many areas. The minimal collection approach is likely a vanguard of future surveys as budgets tighten, host countries seek to establish closer controls on extensive fieldwork, and archaeologists ponder the utility of large collections of redundant, fragmentary material. EKAS manages resources and time prudently during the field seasons by directing its efforts almost exclusively toward the efficient but thorough collection of data.

The manner in which data are obtained and incorporated into our archaeological knowledge system is a significant area of innovation. The complete integration of geomorphological analysis in the research design and in the fieldwork is unique. Conforming DUs to Geomorphic Units allows us to assert confidently that the artifacts contained within them have been affected by uniform (and hopefully identifiable) geomorphological processes. The attachment of one or more geomorphologists to each survey team is also unique, and promotes a deeper understanding of the landscape and the processes affecting artifact distribution. A similar claim may be made regarding the GIS. While the use of GIS in archaeology is by no means rare, the completion of a comprehensive and fully functional GIS in advance of the field work is quite unusual. From the outset, the GIS has been an integral part of sampling strategies, predictive modeling, the daily survey effort, near-real-time analysis, and ongoing evaluation and assessment of diverse data sets. Currently, the GIS is being utilized to develop more sophisticated predictive models. Finally, the application of fuzzy logic to both fieldwork and GIS modeling promises new perspectives on the interaction of environment and culture.

III. Procedures and Daily Routines

Archaeological fieldwork is carried out five days a week with occasional weekend work required from staff members. Every EKAS participant has a unique role and responsibilities that are tied in a direct way to the goals of the project. All procedure is ultimately geared toward illuminating the relationship between Korinthian rural, suburban, and urban areas and defining the place of the Korinthia in the Mediterranean region. The daily procedure is fairly routine and you will soon become accustomed to the intense schedule and workload.

A. Breakfast and Departure

Breakfast is served from 6:00 to 6:30 am. You are free to wake whenever you want and even skip breakfast if you wish, but know that the vehicles leave at exactly 6:30 am. If you are a "Water Sprite" for the week, you will need to fill up the water jugs using the water spigot on the left side of the hotel and load these into the van. Fieldwalkers will also want to take their own water bottles with them to the field.

All fieldwalkers are responsible for loading their team's equipment into the vehicles. The equipment is stored overnight in the computer room across the street from the hotel. Equipment is usually kept in a plastic crate and includes flags, tags, GPS unit, laser range finder, maps, forms, digital camera, and measuring tape.

Vehicles depart from the hotel at precisely 6:30 am. If you are late, you will be left behind, and unfortunately, there are rarely vehicles that go out to the survey area after this time. If you do miss your ride to the fields, plan on meeting the group at the Isthmia Excavation House in Kyras Vrysi at 1:30 pm, or where your team plans to have lunch. You can catch a taxi at the plateia in Ancient Korinth and ride out to Isthmia for about 1600 drx (five dollars). Fieldwalkers will ride in the vehicles that go out to the survey area. These include the white van and several cars. Generally, you will return at the end of the day in the same vehicle in which you ride out.

B. Fieldwalking

Fieldwalkers will spend most of their five weeks with EKAS participating in intensive DU survey, extensive DU survey, or LOCA analysis. This first level of research is called the Discovery Phase because it is generally investigative and aims to discover the kinds of artifacts and features present (or absent) across a region. Walkers spaced at equal distances walk in a parallel line across a field, counting artifacts and picking up representative pieces for later analysis. This phase is efficient, cheap, and painless, allowing a quick assessment of artifact potentials for the survey area. Occasionally, fieldwalkers will participate in a second, more involved and intensive "LOCA" phase, which investigates cultural material using a more systematic and intensive set of procedures. Both of these phases are ultimately geared toward collecting data that illuminate the interrelationships of city and countryside.

The project has set high goals to cover a large amount of territory this season, more so even than during the past two seasons. To do this, the field teams need to quickly become efficient at surveying and filling out the DU forms. While it is expected that survey work will move at a slower pace during the first few days of the season as team members get acclimated to survey work and become familiar with the material culture of the Korinthia, the teams should be moving at a rapid pace by the end of the first week. To do this, team leaders may ask you to walk at a quicker pace, especially in fields where artifact densities are lower or vegetation cover is greater. Moreover, because the team leader often has to deal with a host of other responsibilities during the survey day, such as talking with local farmers, geomorphologists, and the field director, the assistant team leader will supervise the fieldwork at this time so that the survey work can continue to run efficiently.

1. The Discovery Phase

Fieldwalking begins daily at 7:00 am and lasts until 1:00 pm, with a brief "cookie-break" occurring at some point in between (depending upon the mood of the team and cruelty of the team leader). After vehicles have arrived at the survey area, field teams should help to unload the van and carry equipment to the survey area. Team leaders will choose the survey unit with which to begin.

Defining and Mapping the DU

The discovery phase begins by defining and delimiting the survey unit. Discovery units are defined by the team leaders in consultation with the geomorphologist and the field director. Geomorphological zones rather than arbitrary, modern field boundaries govern the delineation of survey units. Discovery units never cross geomorphological boundaries, ensuring that artifacts found in those units belong to the same formation context, landscape shaped by the same natural and human processes. Discovery units are assigned based on geomorphological attributes such as soil changes, drainage conditions, slope, or obvious human activities (e.g., bulldozing or terracing). Generally, the units are small, and certainly no larger than 1.0 ha (10,000 sq. meters).

Once the area of a Discovery Unit has been designated, its dimensions are measured using a laser range finder. These dimensions are noted and sketched by the team leader onto an aerial photograph and are entered into a GIS application at the end of the day. Fieldwalkers will help to measure the dimensions of the DU and experienced fieldwalkers may be asked to help map. While the mapping of DUs will sometimes occur during the process of surveying in the morning, ideally DUs will have been mapped during the afternoon session of the previous day. Because it is necessary to map DUs prior to the time of survey, fieldwalkers will help to lay out DUs for the next day of survey work during the afternoon session.

All mapped DUs should be surveyed. The exception to this are units where visibility is less than 20% and units that are geomorphologically disturbed (e.g., bulldozed), geomorphologically unstable, or unsurveyable (e.g., factories).

Fieldwalking: Lining Up and Walking

Survey procedure is simple and straightforward. When a Discovery Unit is chosen for survey, the team leader decides in which direction to walk and line up. Fieldwalkers are arrayed in a specified direction, from north to south for example. The first fieldwalker in position should pace off five meters from the edge of the DU. The next participant paces off ten meters from the first fieldwalker, and so on, until the entire field team is lined up at ten meter intervals. The interval is always ten meters.

The team leader decides the direction in which to transect the survey unit. Often where crops or trees are large, it is easiest to walk in the same direction as the vegetation; otherwise, fields will typically be walked longitudinally. The compass provides the means of walking the DU in a straight transect, and all fieldwalkers should daily bring their compasses with them to the field. When a direction is decided (e.g., 220 degrees), fieldwalkers should turn the black compass dial to this orientation. Fieldwalkers walk in the direction of the outer arrow on the compass plate, being sure that the red North arrow stays within the arrow outline on the compass plate. It is important to regularly check one's orientation while fieldwalking since it is difficult to maintain a straight line when walking across fields without vegetation rows.

When the team leader gives the signal, participants transect the landscape, walking in their "swath" at the set direction. The walking pace varies according to the amount of ground visible, amount of background disturbance (such as rocks, wood, and leaves), and the density of artifacts. It may be necessary to take more time in a field that is cluttered with artifacts, stones, and vegetation than a field with light scatter of debris. Nonetheless, it is important that fieldwalkers walk at the same pace within each Discovery Unit since different rates of walking certainly result in differing amounts of artifacts noticed between walkers. The team leader may at times tell people to slow down or hurry up, so that a straight line of fieldwalkers is maintained as participants transect the survey unit.

Walkers spaced every ten meters are responsible for visually covering one meter to the left and one to the right of their transect line, a total coverage of 20% for each Discovery Unit; this means that eight of every ten meters goes unexamined and artifacts in these areas will go unnoticed. If there is still more area to survey at the end of the first swath, walkers will again pace off ten meters and walk back across the Discovery Unit.

Artifacts: Counting and Picking Up

Field teams will see a great variety of cultural material in the Korinthian countryside, from prehistoric to modern, from obsidian bladelets to potsherds to plastic Loutraki water bottles. For example, over a four-week survey period in the EKAS 2000 season, ten fieldwalkers counted 73,000 artifacts, more than 7,000 pieces per person. We expect artifact densities to be as high in the 2001 season. For this reason, you will receive a brief training in artifact identification before the survey begins and additional workshops and lectures are scheduled during the season to help you become more proficient at recognizing artifacts. The most prominent artifacts are ceramic materials (pottery, tiles, figurines) and lithics (flakes, bladelets, stone tools, spear points), but we occasionally see ground stone tools (such as polished celts and axes, mortars, pestles, and threshing blocks for grinding grain), marble revetment (which lined the walls of buildings), small marble and limestone tesserae (indicating the presence of mosaic decorations), construction material (concrete and brick), and miscellaneous objects of unknown function.

Participants scan the ground for artifacts as they walk across the survey unit, looking one meter to the left and one to the right of their transect line. When someone sees cultural material on the ground, he / she informs the other walkers by shouting "pottery," "bladelet," or whatever the artifact is. This informs the other crew members about artifact scatter areas which may spread into their own swaths and generally encourages participants to keep the eyes to the ground and remain attentive.

EKAS procedures for picking up and recording artifacts have already been described above.

Digital Images

A transect and visibility shot are taken for every Discovery Unit with the digital camera. These images are important for preserving a visual representation of field conditions at time of survey. The transect shot should show a team member walking a typical transect in a DU; the picture is usually taken from behind the fieldwalker as he / she walks the swath. The visibility image should record a patch of ground that represents the average visibility for a survey unit. The camera is held vertically and should record only the ground surface. A photo log is kept by the person responsible for taking the digital photographs.

GPS Units

All Discovery Units must be located in real geographical space using Global Positioning System (GPS) units. These instruments record one's location in relation to satellites overhead. Because it takes some time for the GPS units to register all nearby satellites and average out the different coordinates, the units should be placed at the notional center of the DU and allowed to "warm up" before the Northing and Easting values are recorded onto the DU forms. One needs at least three, and preferably, four satellites to get an accurate reading with GPS.

Modern Material

The EKAS project is diachronic and we are therefore interested in human use of the land through time. This means that modern material on the landscape is recorded and processed in the same manner as premodern material. Fieldwalkers are required to observe modern feature types (buildings, agricultural fields, structures, walls, churches, dump sites, industrial facilities, etc.) and record them on the DU recording forms. They are also required to include all modern ceramics, tiles, and glass fragments in their counts and recording, and examples of these should be collected in the same manner as for artifacts of all other periods.

Nonetheless, a few types of modern material need not be counted and collected. These include window glass, plastic bottles, wood chips, cans, paper products, and modern brick. While these should be noted and briefly described on the DU form, there is no need to count or pick up scattered trash that is clearly of very recent age. Concentrated trash piles, on the other hand, should be noted and nominated for LOCA treatment.

Features

Field teams will encounter a number of "features" in Discovery Units. Features are cultural material / phenomena that, unlike artifacts, are too large or indiscrete to be picked up. Common features found in DUs include fieldwalls, terraces, pits, and modern structures. All features should be briefly noted and recorded on DU forms and photographed with the digital camera as well as the 35 mm camera, if necessary. Features that need to be recorded and described in greater detail by the processing team should be marked with a blue flag.

Discovery Unit Form

After finishing their swath, fieldwalkers should help to fill out the Discovery Unit Form which helps to preserve important information about the survey unit. This additional data includes field conditions, procedures, artifact densities, and ground cover.

Notebooks

Each team keeps a notebook that records the daily processes of survey. Although the DU forms, photographs, and artifact counts can provide basic information about the survey work that occurred during the season, the notebook fills out information that cannot be recorded through these means. Generally, the notebook should discuss information about decisions made during the survey process; information provided by locals about the use of the land and cultural material on the land; impressionistic assessments of the kinds and types of objects found on the land; drawings and illustrations of important features / artifacts; location and number of bags of artifacts left in the field; anything else that may not be remembered at the end of the day. The responsibility for the notebook will be assigned to the team leader, assistant team leader, or a responsible fieldwalker.

Field Processing Team

In survey projects employing a collection strategy, artifacts are taken back to a laboratory and analyzed. Because EKAS employs a low-impact strategy, all processing and analysis takes place in the field. After the field team has gone on to the next DU, the processing team comes in and analyzes the gathered artifacts in the northeast corner of the DU. Potsherds and lithics are measured, sketched, and described; photographs are taken with a digital camera; artifacts are designated to an appropriate ChronoType. The diagnostic artifacts identified by the processing team provide the specific information about chronology and human activities needed to address EKAS research goals.

2. The LOCA Phase

Field teams will encounter a great variety of artifact densities and clusters this summer. There will be some fields that are essentially devoid of material, other fields with light scatters, and some fields with enormous amounts of pottery. We employ the concept LOCA, Localized Cultural Anomaly, for cultural material that merits further investigation. Often LOCAs include artifact concentrations that have definable boundaries, homogeneous cultural components, and greater artifact densities. LOCAs are thought to represent a variety of past cultural phenomena, such as past settlements (e.g., an abandoned farmstead or fortification), sanctuaries, and activity areas (e.g., an area for producing stone tools). When field teams encounter artifact clusters of this sort, team leaders will decide to nominate artifact clusters as LOCAs. Fieldwalkers will help to fill out a LOCA Evaluation Form (see below) if the team leader nominates an artifact cluster as an N-LOCA (Nominated LOCA).

Ultimately, the team leaders, geomorphologists, and senior staff will decide which of the N-LOCAs are true LOCAs, that is, culturally significant rather than geomorphologically or randomly caused. Field teams will investigate several of the LOCAs over the course of the season. The methods used to analyze LOCAs are slightly different than those of the Discovery Phase.

Methodology

The LOCA collection procedures we employ at EKAS are similar to the standard methods utilized by previous survey projects in Greece. Many LOCAs are gridded. For such LOCAs, the first step is to determine the area of the LOCA to be investigated and to lay out a 10 by 10 meter grid on the ground over this area. This task is accomplished with tape-measures, laser rangefinders, compasses, and flags. Once the grid is in place, it is documented and tied to fixed geographical points, using local landmarks and GPS readings. A predetermined set of grid squares is then "collected". In addition to collecting representative artifacts (taken back to the Isthmia Excavation House) , team members count all artifacts and collect them in the center of the square for subsequent evaluation by the processing team. A number of sampling strategies offer various compromises between maximum data collection and minimum time expenditure; we will be conducting experiments to determine which of these strategies is the most efficient, that is, providing maximum information retrieval in the shortest amount of time.

LOCA Designation and Initial Assessment Form

Field teams will complete a LOCA Designation and Initial Assessment Form for every artifact cluster and feature that the team leader designates as an N-LOCA. The sheets in the form require survey teams, artifact processing teams, and geomorphologists to fill out both general and specific information about the area and cluster. The form consists of six sections: I. Basic Data, II. Initial Assessment of Surface Anomaly, III. Chronology and Function of Artifacts, IV. Impact Assessment, V. Recommendations for LOCA Investigation, and VI. Sketch Plan or Aerial Photograph of the LOCA.

C. Geomorphological Procedures

The Geomorphology Intern (GI) assigned to each survey team is responsible for collecting geomorphic data in order to advise the team leader and create high resolution strip maps of the geomorphology and land cover along the survey transect. Because the GI acts as an adviser to the DU team, he / she often works ahead of the team in the fields of the transect to be surveyed, collecting information on the surface conditions that will assist the team leader in making decisions about how these areas should be surveyed. The GI has the additional tasks of 1) creating a high resolution geomorphologic strip map of the survey area; 2) collecting descriptions of the surface materials in the mapping units (filling out the geomorphologic unit form); and 3) entering the collected geological data into the computer as instructed. All of this information is carefully recorded not only on the forms but with detailed notes (in the GI notebook) and maps that record the geomorphological units and the basis for defining these.

In addition to these primary responsibilities, the GI sometimes works closely with the team, differentiating artifacts from geofacts, serving as fieldwalker, or mapping out survey units. Fieldwalkers may be asked to help the GI with the latter task.

D. Lunch Break

The morning fieldwork ends at 12:45 and field teams reassemble at their vehicles to leave for Isthmia or Ancient Korinth at 1:00 pm. Most EKAS staff return to the "dig house," located adjacent to the Sanctuary of Poseidon at Isthmia, for lunch at 1:30. Teams, however, may return to Rooms Marinos in Ancient Korinth for lunch. In either case, the menu is simple and routine, and usually served picnic style. Those who are on lunch duty should go to the local store to buy the food items and make the necessary preparations. The lunch crew signals lunchtime by ringing a bell. Everyone should help to clean up afterwards. Following lunch (usually 2:15 pm), there will be an opportunity to go swimming at a nearby beach. You are free to join in the beach fun or, if you would rather, take a short nap, walk down to the canal, or sit and read at a taverna near the gulf. After the trip to the beach, the cars will shuttle team members back to Ancient Korinth (with a brief stop for icecream on the way!!).

E. Afternoon Sessions

In the afternoon, the staff reassembles to perform a number of critical tasks. The exact timing of the afternoon work may vary depending on the nature of the work and where the work will take place. Most team members will work at the hotel in Ancient Korinth during the afternoon, although a few people will return to the field. Afternoon work hours last from about 4:00 to 6:30. Although it will be tempting to spend this time at the taverna rather than the computer facilities, the project depends upon the afternoon work of all the team members in order to prepare for the next day of fieldwork. As a team member, you should expect to perform each of the following afternoon responsibilities while participating in the project. If, however, you have special skills (e.g., familiarity with computer software), interests (e.g., laying out DUs in the field), or concerns (e.g., the desire to gain experience using topographic maps), please voice these to your team leaders / assistant team leaders, who will try to accommodate you. Also, while the following instructions provide guidelines for carrying out the specific afternoon tasks, you will learn best by simply doing the tasks. They are much simpler than they sound!!

Generally, afternoon responsibilities will be assigned on a weekly rotation basis. Team leaders will generally go out to the field during the afternoon and not be around until early evening to answer questions. The assistant team leader, however, will usually be in Ancient Korinth and will supervise and coordinate the various afternoon activities. In addition, the assistant team leader will make the necessary logistical preparations for the next day, such as obtaining several copies of the proper aerial photographs and topographic maps. If you have questions, please direct your anxieties, questions, and concerns to the assistant team leader.

Team Survey Boxes

Each week, two people from each team will be responsible for the team survey boxes. One person will see that the team crate is taken from the computer room and put in the white van in the morning, prior to departure for the field. The other person will unload the crate from the van in the afternoon, returning it to the computer room. The afternoon person is also responsible for inventorying survey supply boxes for the next day, packing and re-supplying the boxes with bags, flags, digital camera, 35 mm camera, laser rangefinder, yard stick, recharged batteries, etc. Sometimes equipment such as digital cameras will be in use until early evening, so this check should sometimes take place after that. Because it is essential that this equipment returns to the field every morning, please take this responsibility seriously. The person responsible for the survey box in the morning should also check to make sure that all equipment is in the survey box. The individuals responsible for the boxes should also expect to perform one other afternoon task (below).

Generally, individuals are personally responsible for EKAS equipment (computers, telephones, GPS units, cars, etc...) signed out to them, and must notify Tom or the Directors in case of damage; they may be responsible for paying for replacement or repair of damaged equipment. Please be careful with the project’s equipment.

Mapping

One or two members of each survey team will be responsible for obtaining elevations and the longest dimensions for each DU and recording these figures onto the DU forms. One can obtain the longest dimensions by using a scale ruler to measure the longest side of the plotted DU on the aerial photograph. Team members check elevations at the center point of DUs plotted on the aerial photographs. Although aerial photographs do not contain elevations, one can acquire elevations by matching up the aerial photographs with the topographic maps. Because the DU forms and aerial photographs are also needed by the other individuals performing afternoon tasks, the team members performing the various tasks should work out a system to share these. If you have trouble with mapping, talk to the assistant team leader.

Data Entry

Everyone should expect to do data entry and data checking regularly while participating in EKAS this summer. All paper forms filled out during morning fieldwork (Discovery Unit forms, Geomorphological Unit forms, and artifact analysis forms) are keyed into a MS Access database. Each field team will be assigned a computer, which will be stored in the computer lab maintained at the hotel. The team computer will be needed for both data entry and downloading digital photographs, and the persons responsible for these tasks should share the computer in the afternoon. This may mean that the data entry person will have the computer from 4:00 to 5:15 while the person downloading digital photographs will use the computer from 5:15 to 6:30, or vice versa. While keying the data from the DU forms into the database, the team member should check the forms for completeness and accuracy, filling in missing information (e.g., unfilled check boxes, description boxes, etc…), if possible, or making a list of incomplete DU forms. This list should then be shown to the team leader or assistant team leader who will gather this information and return it to the person doing data entry. This additional information should then be keyed into the database. The person responsible for the data entry should also do checks on the data in the database itself to ensure that all information has been keyed for each DU.

Digital Photographs

One person each week is responsible for the daily task of downloading digital photographs from the digital camera onto the team computer. All digital photos must be assigned individual file names as .jpg files, according to specific naming conventions, and placed in the proper folder on the computer. The file naming system is as follows: The first digital photo taken for each DU is always the transect shot. The file of the transect photo is labeled by the DU number, followed by the number "1" (e.g., 501-1.jpg). The second digital photo taken for each DU is the visibility photo, and this receives the number "2" (e.g., 501-2). Any additional photos (features, survey work shots, etc…) are given consecutive numbers (e.g, 501-3). After all digital photos have been transferred from the camera to the computer and saved as .jpg files, the photos can be deleted from the digital camera. Please make sure that the files are saved on the computer before deleting them from the camera!!! The person responsible for downloading digital photographs for the week may also be asked to take the digital photos while in the field and keep a running photo log of all pictures taken.

Team Meetings

Commonly, field teams will meet during the afternoon hours to discuss what was found and what the data might mean, as well as raise concerns about any aspect of the fieldwork. If you have concerns, you can voice them at this time. In addition, the Directors will have open "office hours" at regular times, when you can speak directly to the people in charge, and there will be regular full team meetings at least once a week, normally on Sunday evening before dinner.

Afternoon Work in the Field

Some afternoon tasks involve returning to the field for planning and preparation that can only be done there. This will chiefly involve the geomorphologists and team leaders / assistant team leaders, who will need to map field units (see discussion above) and complete geomorphological descriptions in advance of survey teams. Crew members will also be solicited to help with this work and fill out some information on the forms of the DUs to be surveyed the following day. Other teams, such as topographic and site mapping teams, may require field time in the afternoon as well.

Trips to New (Modern) Korinth

On afternoons when stores are open in New Korinth, we may run a vehicle in to purchase supplies or photocopy forms. You may be asked to help out with this, or you might simply want to go along. Keep your ears peeled.

F. Additional Meetings and Responsibilities

In addition to these daily procedures, EKAS participants should also plan on a few additional responsibilities and meetings during the week. These will take little extra time but are important for the operation of the project.

Miscellaneous Tasks

There are essential tasks that must be carried out to ensure that the project continues to run smoothly. These include, among other activities, cleaning and maintaining our facilities, preparing lunch, and washing the project vehicles. All tasks are assigned in a rotating fashion to fieldwalkers and field processing team members. Task descriptions and weekly assignments will be posted both at Isthmia and Ancient Korinth. Though some jobs, such as cleaning the bathrooms at the Isthmia Excavation House, will not be entirely pleasant, we expect that you will accept these responsibilities in the spirit of making our work as enjoyable and trouble-free as possible.

Weekly Meetings

As mentioned, on Sunday evenings at 7:00 pm, the entire EKAS staff will assemble in front of Rooms Marinos to discuss the progress in survey, changes in procedure, and logistical issues that have arisen over the past week. It is expected that all EKAS participants will attend these meetings.