

**Negotiating Space: Routes of Communication in Roman to British
Colonial Cyprus**

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Submitted for the degree of PhD in the Department of Archaeology, University of
Glasgow, March 2005

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Abstract

Offering a social approach to landscape through the systematic study of communication routes, this study redresses the balance between previous social, historical and data driven archaeological studies of roads, paths and communication routes, while providing landscape survey projects with the techniques through which to address social interaction on a regional scale.

Research on roads, paths and communication routes completed over the past 50 years focuses on the technology of road building, descriptive historical accounts of roads, and anthropological investigations that focus mainly on the role of communication routes in movement, memory and landscape. Unlike these previous studies, this research addresses communication routes as socially embedded material culture.

Since the 1970s many archaeologists working in the Mediterranean have employed regional survey techniques in order to investigate broader patterns of human activity in the landscape. Communication routes are notoriously absent from these survey projects. Interaction is instead extrapolated from topographical information and sherd densities. In the current climate of landscape archaeology where interdisciplinary regional survey projects employ ever more complex and insightful GIS systems in the attempt to understand social landscapes, the absence of communication data appears glaringly obvious.

Within this thesis I argue that the importance of roads and paths goes beyond the places they may or may not connect or intersect. Instead, roads and paths are products of daily practices that reaffirm, redefine and reproduce social and cultural relations. Through the intensive survey of communication routes in three distinct regions in Cyprus, (North Palekhori, Mandres and the Akamas Peninsula Survey Zones), I gained a greater understanding of the interplay between human activity, expressions of identity, land use and settlement from the Roman to the British Colonial period.

Although the morphology and structural features of roads, paths and communication routes vary between these survey zones the underlying themes involved in the construction, maintenance and use of communication routes cut across geography and time. This thesis pushes the boundaries of landscape archaeology and survey methodologies to address: human-land relations, traditions of road and path building, the role of roads and paths in the negotiation of power and the entwined nature of communication routes and perceptions of landscape.

Acknowledgements

I am grateful to many individuals within the Department of Archaeology in Glasgow for their support and interest in my work over the past four years. I am most indebted to Dr. Michael Given whose role as a supervisor and mentor not only provided a wide range of thesis support (from lending equipment to supportive beverages) but also for his insight into the discipline and practice of archaeology itself. Prof. Bernard Knapp's experience in archaeology made him an important member of my supervisory team, providing insightful, yet challenging perspectives.

Fieldwork in Cyprus was made possible in 2002 and 2003 through the support and permission of the Department of Antiquities under the direction of Dr S. Hadjisavvas. The Department of Lands and Forest in Cyprus contributed their enthusiasm and kind logistical support to my fieldwork for which I am grateful. The Cyprus American Archaeological Research Institute (CAARI) was always a place I received a friendly welcome no matter how tired, hot and grumpy I arrived. The kind support, guidance and interest of the people of Askas, Palekhori, Nikitari, Neochorio and Nicosia reminded me to look beyond my green forms to the people living in that landscape.

Financial support for fieldwork, fieldwork preparation and supplies during 2002 and 2003 were provided by grants from the Council for British Research in the Levant, the Anita Cecil O'Donovan Grant, the Department of Archaeology, Faculty of Arts, and the Graduate School at the University of Glasgow, Scotland. My first three years of my study benefited from support from an Overseas Research Studentship award in combination with the University of Glasgow Year 2000 scholarship. Without this financial support, in addition to later support from family, studying towards a PhD would not have been possible.

There are far too many people who formed part of this work to trivialise their participation with a simple mention. A picture does sometimes say a thousand words. Those photos that follow present a smattering of the people who helped me into, and through this journey.

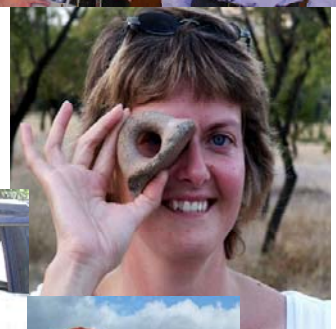


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1 Paving the way...

Is love truly all around us? The discussion of heart shaped gum designs found along gum encrusted pavements may seem an inappropriate way of starting a serious discussion of the role of communication routes in negotiating space. Gum hearts are, however, strangely relevant. There is no doubt in my mind that the analyses, no matter how brief, of the material form of gum hearts, may bring one closer to understanding how humans interact, how intentional acts are positioned, and routes embodied.



Figure 1.1: Gum heart located on the east side of Cranworth Street, Glasgow.

‘Gum hearts’ are made of pieces of discarded gum arranged in a heart shape along the ground surface (Figure 1.1). Three gum hearts were investigated within the vicinity of Glasgow University. They were located as part of daily movement to and from the Archaeology Department.

Gum hearts embody multiple intended actions focussed toward a shared symbolic goal or message. The significance of gum hearts comes partly from the fact that they are not formed at one period of time as is evident from one partially formed heart (Figure 1.2). The heart shape links those who participate in its construction in a common purpose or goal. The symbol itself is usually associated with love, which may, or may not, play a role in its intended meaning. While some may draw upon deep emotional feelings, others may participate merely because the symbol is universally known and easy to reproduce.

The diverse locations of gum hearts suggest a relationship between the heart form, construction, pavement and interaction taking place on that pavement. Gum hearts are the material remains of past choices. Hearts such as Figure 1.2 were formed near the taxi stand and bus stop where humans already pause.

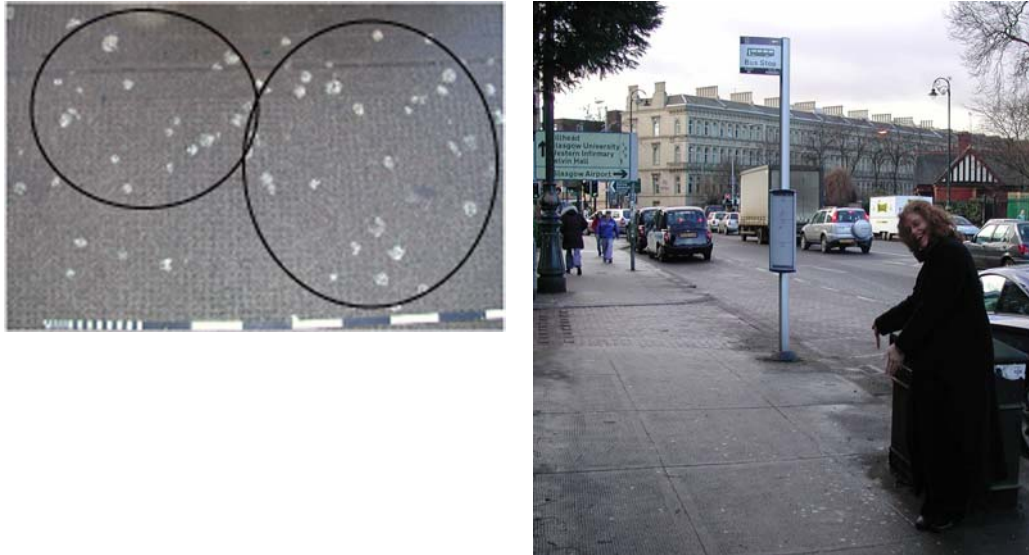


Figure 1.2: On left double gum hearts on Queen Margaret Drive opposite the Botanical Gardens; on right position of hearts with relation to bus stop and garbage bins

Although individuals are given the choice to either throw away their gum in the adjacent garbage can, many have instead used the gum to construct hearts. In other instances (Figure 1.1) gum hearts are formed along thoroughfares where pedestrians do not stop. In this case hearts are well formed and are used to manipulate traffic, causing individuals to pause and assess the intended message. The significance of gum hearts comes from the interactions in which they are entangled. Waiting outside the library, taxi stand or stopping on a street corner, gum hearts are expressions of repeated interaction. The act of stopping and participating in the construction of a gum heart transforms the landscape into a place that is a bit less foreign. Thus gum hearts bind individuals – the creators and observers – in ever changing interaction.

1.1 Research aims

Communication means to impart, convey or to pass messages from one individual or group to another. These messages may be communicated audibly through speech, sound and visual means. Communication routes are the means through

which messages are transferred through the landscape. They are transmitted through actions such as the sound of a farmer whistling on the way to his fields, the wheels of a cart over a cobbled road, a merchant calling to customers along a road, the placement of milestones, fountains and bridges stamped with imperial crests. This thesis is based on the premise that roads and paths are more than conduits for movement. The roads and paths that make up the communication routes and form the focus of this thesis are the physical traces of repeated communication. I use the term ‘communication route’ because it highlights how human interaction is embodied within roads and paths. Like all material culture, communication routes are created and redefined by groups and individuals with specific aims and intentions. Within this PhD thesis I argue that – as physical traces of repeated communication – roads and paths are the product of social relations. As a result, communication routes are inevitably entwined in the negotiation of power. I maintain that through the analysis of both communication routes and individual roads and paths, it is possible to understand the interactions in which these routes were created, used and modified.

Tracing the route of roads and paths for the purpose of putting a line on a map or linear description in a book says little of the social relations in which a route is entwined (see Bekker-Nielsen 1995: 88-130). Archaeological focus on ‘sites’ continues to favour interpretations of roads and paths as connecting features instead of acknowledging them as material culture worthy of study in their own right.

The road system was not a baffling skeleton in an empty landscape but part of an intense network of sites of all kinds which, in one period at least, helped to articulate their relationship to one another and the world beyond (Kennedy 1997: 92).

In this thesis I argue that the importance of roads and paths goes beyond the places they may or may not connect or intersect. By denying that the road system played a role in the human interaction that took place on the route itself, Kennedy overlooks a whole new way of looking at the relationships between people, settlements and their landscape. Through the archaeological analysis of communication routes I am able to explore a variety of social themes related to the construction, maintenance and modification of roads and paths that have not

been addressed previously (see Section 1.2). These themes include: the maintenance of communication routes, human-land relations, traditions of road and path building, the role of roads and paths in the negotiation of power, the entwined nature of communication routes and perceptions of landscape.

1.2 Research foundations

Research related to the study of roads, paths, and communication routes comes from a diverse mixture of fields including history, classics, anthropology and archaeology. Research completed over the past 50 years can be subdivided into three broad categories: the detailed investigation of roads focusing on technological aspects of road building or the detailed investigation of the route of specific roads; descriptive historical accounts that may or may not include descriptions of material culture associated with the road; and anthropological investigations focusing on routes or paths and their role in movement, memory and landscape.

Research on road technology focuses mainly on Greek and Roman period roads. Forbes (1964), Goodchild and Forbes (1956), and White (1984) wrote detailed texts on the history of Greek and Roman road building, while pre-Roman roads were studied by Pike (1967) and Crouwel (1985). These scholars investigate technological features such as wheel ruts, grooves, and wheeled transport versus animal transport, harnesses and cart dimensions.

Today archaeological investigation of roads takes one of two forms – a more descriptive and historical approach to roads incorporating material culture where appropriate, or the detailed investigation of specific roads and their route. The descriptive historical approach followed by Rackham and Moody (1996) in Crete, Dorsey (1991) in Israel, and Mitchell (1993) in Anatolia, provides descriptions of roads that include their morphology, location as well as associated material culture. They focus on the role that roads play in influencing political circumstances, economic patterns, taxation, transport and demographic patterns. In some instances descriptions draw upon historical sources in addition to the analysis of material culture along the route to provide a more regional view of

communication. Kennedy (1997) looks at Roman period settlement evidence and milestones, while Bagnall *et al.* (2001) includes Roman engravings and Milner (1998) explores monumental structures such as gateways and bridges. These studies do not systematically investigate the location, morphology or social context of these roads.

Kloner and B-D. Chaim (2003) trace an Iron Age road located through reconnaissance survey of the Kerak Plateau to the east of the Dead Sea. Similar surveys include historical research with reconnaissance survey in order to locate Roman roads in Anatolia by French (1981), in Italy by Fredriksen and Ward Perkins (1957) and in Cyprus by Bekker-Neilsen (1995, 2004). These studies focus on outlining the route in detail and view the topography as playing a central role in understanding the economic and political function of the road.

About 5km from ancient Marion and a short distance west of the modern village of Latsi, a side road diverged from road {31}, leading uphill to the village of Neokhorio. Near the centre of the modern village it divided, one branch {311} continuing southwards in the direction of the modern village of Androlikou, the other {312} north-west to a plateau of fertile agricultural land around Smigies (Smiyes)... (Bekker-Neilsen 2004: 138)

While roads are the focus for investigating all material, technological, and detailed survey, anthropologists discuss social aspects of interaction with relation to communication routes and paths. Anthropological investigations of paths by Golledge (2003) and Zedeno and Stoffle (2003) focus on the social and cultural implications of moving along paths: their role in remembering, knowledge and orientation. Even though these individuals accept the importance of seeing roads and paths as “places in their own right, with unique activity, social intercourse, and material culture associations” they do not see roads or paths as material culture in their own right (Zedeno and Stoffle 2003: 59). Horden and Purcell (2000) take a broader approach to the study of communication routes. They focus on the significance of the whole route rather than its individual segments, believing that the individual segments of the route derive meaning from their inclusion in the whole (2000: 130-132). As a result they deny the importance of individual actors and their interaction in the production and maintenance of communication routes.

The 'En Bokek Survey of the southern Judean Desert included an Early Bronze Age II-III (3050-2350 BC) period route ascending the cliffs and plateaus from Nahal Hemar to Nahal Zohar. This survey goes beyond previous work on roads in the Judean Desert that focused primarily on interpretations of ancient texts. Instead, Yukutieli (2004: 3-35) recognises that roads are entwined in social, economic and political relations. The route was identified by a linear pattern of small-scale sites dated to the Early Bronze Age II-III. The route has been interpreted as connecting the 'Arad Valley and the southern Ghors provinces. Yukutieli acknowledges the social and economic aspects of connecting these two regions while looking at how the route was entwined in power relationships. The road was "deliberately designed to enable total control of the ascent" (Yukutieli 2004: 26). Yukutieli illustrates the importance of the road in social and political relations by seeing that the position of the road and stopping places along the route were intentionally positioned in order to physically and mentally manipulate those who used the route. He does not, however, address the material form of the road, nor material evidence for reactions to this manipulation.

1.3 What are communication routes?

Communication routes mark the overall course of interaction through the landscape. The systematic study of the physical remains of land routes – roads and paths – is the main focus of this thesis while, where applicable, sea communication routes are investigated through the detailed study of harbours, berths and their associated material culture.

Roads, paths and animal tracks are defined using multiple criteria. Animal tracks were not systematically surveyed but are distinguished from both roads and paths by their narrowness (less than 50 cm wide), light compaction and vegetation change between the track surface and the surrounding environment. Footpaths (also called paths) vary in width. They are distinguished mainly by their surface compaction and characteristic rounded outer edge that suggests methods used in their construction. Roads too vary in width. Their distinctive features are the presence of structural evidence for construction technique and the obvious

difference in vegetation between the road surface and the surrounding landscape. In many cases roads may have evidence of a prepared surface. There is little evidence to suggest a parallel between prepared road surfaces and their use by wheeled traffic. Although these distinctions between animal tracks, footpaths and roads are artificial and do not take into account the transitional nature of communication nor the role of human interaction in their changing form, I have used these categories for analytical purposes with the knowledge that the recorded morphological distinction represents only one point within their material lives.

1.4 An introduction to Cyprus and its history

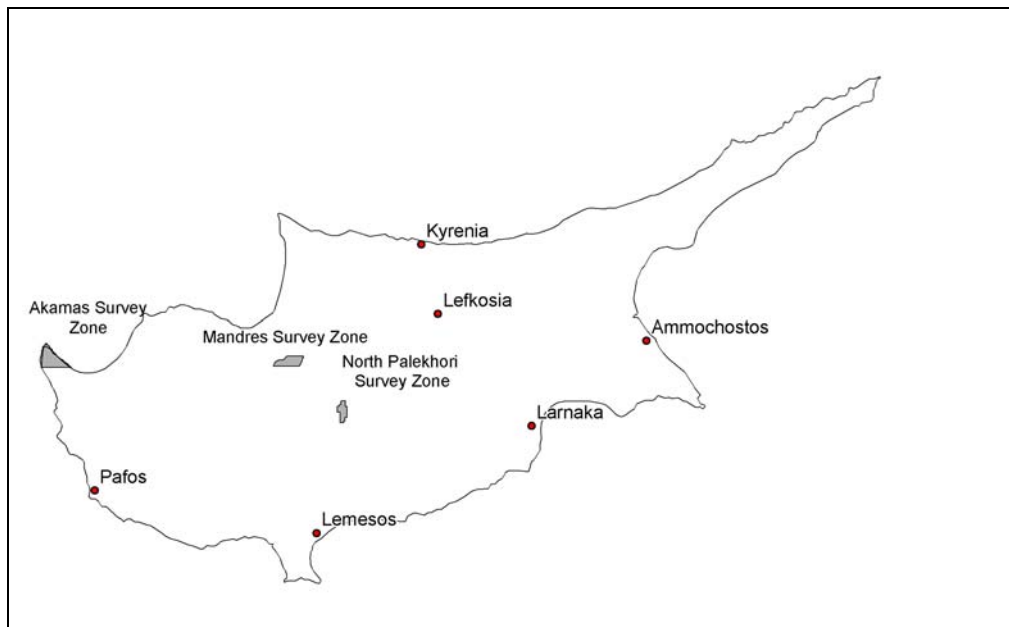


Figure 1.3: Schematic view of the island of Cyprus with survey zones outlined in grey.

Cyprus is an island just over 9000 km² located in the eastern Mediterranean Sea (Figure 1.3). It was chosen for this study of communication routes for two main reasons – its position as a crossroads for communication in the Mediterranean Sea, and the well-established tradition of regional survey on the island. The island provided the opportunity to systematically address a previously un-researched subject of study in an area where systematic regional survey is now well established (such as the Sydney Cyprus Survey Project (SCSP), Canadian Palaepaphos Survey Project (CPSP), Troodos Archaeological and Environmental Survey Project (TAESP), and the Akamas Peninsula Survey Project).

The settlement history of Cyprus is born out of the islands' central position in the Mediterranean. The topography is marked by two main mountain ranges, with the Kyrenia Range in the north and the Troodos Range in the south. Between these mountains lies the fertile Mesaoria Plains. Volcanism and later uplifting of the sea floor during the Cretaceous period exposed pillow lavas with copper deposits that made the island famous for the presence, production and trade of copper from the prehistoric Bronze Age to the present day (Gass 1980: 25; Knapp 1994).

Today the Mediterranean climate of the island supports large-scale agricultural production in the Mesaoria and along coastal plains, while smaller garden plots, pastoralism and subsistence level farming are scattered throughout the island. This pattern of land use has likely changed little since the Roman to British Colonial time periods.

1.4.1 Hellenistic to Roman period (312 BC-AD 650)

Cyprus was made part of the Hellenistic monarchy in 294 BC soon after Alexander the Great died and the island was taken by his general Ptolemy (Tatton-Brown 1988: 16). The island remained under the control of the Ptolemies throughout the rest of the Hellenistic period.

It was likely the strategic position of Cyprus that fed the Ptolemies' initial interest in the island. It has been suggested that military settlements may have been attached to larger cities such as Paphos and Salamis during this period (Michaelides 1996: 141). Though the initial interest may have been military, the exploitation of natural resources such as timber for shipbuilding, minerals and grain became very important (1996: 140; Tatton-Brown 1988: 17). Cyprus remained in the hands of the Ptolemies until 30 BC when the Emperor Augustus took the Egyptian capital Alexandria (Tatton-Brown 1988: 17). In 22 BC the island was ceded by Augustus to the Senate.

1.4.2 Early to Late Roman (31 BC-AD 650) period

Cyprus became a province with Roman expansion into the Near East. It was temporarily incorporated into the strategically important province of Syria in 27 BC and later the same year became its own province ruled by proconsuls (Millar 1993: 31; Mitford 1980: 1295; Tatton-Brown 1988: 17).

The province of Cyprus was “both a sphere of operation and a geographically defined area” (Millar 1993: 31). The island had a unique position in the Empire – unlike other provinces, no colonies were ever established on the island and until AD 212 Cyprus had few people of Roman citizenship (Mitford 1980: 1364).

Administration was organised into four districts: Paphos, Amathus, Salamis and Lapithos (Tatton-Brown 1988: 17). The twelve or thirteen cities that existed in Cyprus during this period were found both on the coast and inland during the Early Roman period (Moore 2003: 277-279). During the second and third centuries AD a period of economic downturn appears to have affected some areas in south western Cyprus while in other areas, such as the foothills of the northeast Troodos, distribution patterns remained consistent (Fejfer *et al.* 1995: 22-23; Fejfer and Hayes 1995: 66; Moore 2003: 278). The first Roman period roads financed by Emperor Augustus and Titus were constructed between 27 BC and AD 81 (Michaelides 1996: 143; Mitford 1980: 1336). Thirty Roman milestones were found on Cyprus, many of which list the names and titles of the ruler followed by the mileage. During the Severan period the name of the governor or proconsul was included along with the name of the city responsible for issuing the stone (Bekker-Nielsen 2004: 39-41). Thus milestones were often connected to city territories (Mitford 1980: 1337-1338).

Throughout the rest of the Near East, AD 74 to AD 195 was a period when the Roman Empire expanded and intensified its presence (Millar 1993: 100-142). The expansion of communication routes in Anatolia went hand in hand with the military expansion into the East during the third and fourth centuries (Mitchell 1998: 62). At the same time as the expansion in Asia Minor, roads on Cyprus were renovated and in the Severan period (AD 195-235) responsibility for their

construction and maintenance was transferred to individual city states (Michaelides 1996: 143; Mitford 1980: 1336-1337).

The Tetrarchic period, from AD 284, was inaugurated by Diocletian who put into place a new taxation system, the rearrangement of provincial boundaries, a new regional government with twelve 'dioceses' and the division of the Empire between two Augusti and two Caesares (Millar 1993: 174-175). Changes in policy, to require taxation in kind, likely occurred alongside the development and expansion of these communication networks (Mitchell 1998: 63).

The persecution of people of Christian faith was formalised in AD 303 under the Tetrarchy (Millar 1993: 179). With the end of the persecution of the Christians in AD 313, the Christian Church and bishops were given newfound status (Millar 1993: 212). Bishops and archbishops were established in Cyprus AD 325 where they had much power: "the archbishop of mid 4th century Cyprus was the unquestioned representative not merely of his metropolis but of the entire island" (Mitford 1980: 1382).

Archaeological information from survey and excavation data reveals that the Late Roman period in Cyprus was a time of prosperity where farming expanded and intensified (Fejfer 1995: 24; Gregory 2003: 283; Rautman 2000: 318.). The exploitation of resources, Roman expansion and tax collection went hand in hand with well-established communication routes.

1.4.3 Byzantine period (AD 650-AD 1191)

The Byzantine period as defined in this thesis begins with the Arab raids in AD 650 and continues to AD 1191 when King Richard I of England briefly controlled the island and then passed control of the island onto the Lusignans (Edbury 1991: 1). Little overall is known of the archaeology of the Byzantine period in Cyprus. The transition from the abundant material remains of the Late Roman period to the scarcity of remains from the Byzantine period makes this time period unusual (Gregory 2003: 283). Several factors may have contributed to the relative absence of material culture from this time period. Some suggest that it was an aceramic

period of culture, while the most likely scenario posed by Gregory (2003: 283-284), is that pottery from the Byzantine period has not been accurately identified and is currently mixed in with that of the Late Roman. Documentary sources agree that the first Arab raid took place in AD 648/9 and raiding of the island continued until AD 698 (Dikigoropoulos 1958: 94-95). Cyprus' central position in the Eastern Mediterranean enabled close ties with the cities on the eastern mainland at the start of the Byzantine period (Cameron 1996: 28). It is this strategic position in the Mediterranean that made Cyprus

of crucial importance to both powers, Byzantium and the Caliphate, while its place on the main sea routes... made it bound to play a major role in communications and exchange. At the same time, its own history, somewhat isolated from the mainstream, and the independence which had been granted to the church of Cyprus in the fifth century, placed it in an interesting and unusual position vis-à-vis Constantinople (Cameron 1996: 28).

Cyprus was the focus of much demographic change during this period when at least 170,000 Cypriots were taken from the island as prisoners (Cameron 1996: 31-32; Englezakis 1995: 73). Justinian II moved a significant number of Cypriots to the New Justinianoupolis in the Hellespont in AD 690 to 699 (Englezakis 1995: 81; Kyrris 1999: 235).

Because Cyprus occupied a position that did not "fall fully within the bounds of the Umayyad state" it was not 'Islamicised' in the same way as many other countries (Cameron 1996: 28). Instead, it appears that during much of this period Cyprus was a buffer between the Byzantines and the Arabs with each having the right to tax the people of the island (Gregory 2003: 283). The Arab raids of the mid-seventh century did not result in permanent control of the island or in its absorption into the Caliphate (Cameron 1996: 44). It appears that the Arab raiders never intended to control the island but instead wished to draw upon its resources. Orthodoxy was established in Cyprus after AD 965 and to Dikigoropoulos (1958: 787), marks the period when Byzantine rule was accepted by the population of Cyprus.

1.4.4 Medieval period (AD 1191-AD 1571)

In the Medieval period, Cyprus was caught in the centre of western European expansion into the Mediterranean and the Crusades. Cyprus' central position in the Mediterranean made it attractive to western countries for trade. Maritime trade in the eastern Mediterranean became ever more important during this period. There was a Venetian presence on the island of Cyprus prior to the period when the Venetians officially acquired the island in 1489 (Boas 1999: 6; Papacostas 1999: 485). In 1126, even before the 'official' Medieval period began, the Venetians were given trading concessions on the island (Edbury 1991: 3; Papacostas 1999: 485).

The Venetians in Cyprus were not confined to acting as merchants in port towns. Instead Papacostas (1999: 499) suggests that they owned estates and were deeply involved in the production, processing and export of local produce to ports such as Limassol. Evidence of such involvement is suggested by the presence of villages with gardens, mills, churches and houses located in the southern Troodos and in the areas around Limassol.

It is generally accepted that the Medieval period in Cyprus started with the third Crusade when King Richard I of England occupied the island in 1191 (Edbury 1991: 1). The island was then transferred to the Templars and then to the king of Jerusalem, Guy of Lusignan (Boas 1999: 5; Edbury 1991: 8). From this point onwards until the Ottoman conquest in 1571, the island was under the rule of the Latins (Richard 1985: 267).

Guy of Lusignan was the first of the Latin regime from Latin states in the eastern Mediterranean. He encouraged other settlers to come to Cyprus from those lands dispossessed by the Muslims such as Jerusalem and Syria (Edbury 1991: 19-20). Many of the feudal customs from Crusader kingdoms were transplanted into Cyprus during this period. The most prominent family in Cyprus during the Lusignan period was the Ibelin Family – opponents of the Lusignan Family. It was Aimery, the brother of Guy, who married the daughter of Baldwin of Ibelin and united the families (Edbury 1991: 39-40).

In the thirteenth century the politics of Cyprus were closely tied to those of Jerusalem (Edbury 1991: 74, 101-102). Surplus income from estates, salt mines, etc. in Cyprus went to the protection of territory under Christian rule. During this period, non-Latin inhabitants of Syrian Christian ports came to Cyprus and lived in Famagusta.

After the conquest of Acre by the Muslim armies in 1291 Cyprus became the last Christian country in the eastern Mediterranean (Edbury 1991: 101). Although the Pope banned trade with the Mamluk, with armies and patrols set up throughout the Mediterranean to make sure that no illegal trading occurred, trade between Cyprus and Syrian ports under Mamluk control continued. As a result, the early fourteenth century was a prosperous period in Cyprus. International trade flourished and Famagusta became a centre for trade of goods from Cilicia and Syria (Edbury 1991: 104, 151-153). The economy of the island was hurt when trade routes changed in the middle of the fourteenth century and the plague hit the island. Hostilities between the Venetians and Genoese, two main trading forces on the island, came to a head in 1373 when the Genoese attacked and pillaged Famagusta. From 1489 to 1571 Venice had direct control of Cyprus and they relied on the international trade of grain and new products including salt and cotton. During this period most peasants lived on seigneurial estates (Arbel 1996: 183-188).

The organisation of medieval period estates is especially relevant to the interpretation of data within this thesis. In the medieval period land in Cyprus was granted as fiefs to noble families, churches, knights, officers and high-ranking citizens (Karouzis 1977: 25-26). There were three levels of peasant society that existed during the Frankish period and were maintained through the Venetian period (Karouzis 1977: 26). Although varying greatly, in general the serfs or *parici* cultivated the land and paid the lord of the fief fifty *besants* and one third of produce a year in addition to two days of labour every week (Karouzis 1977: 26). The *perperiarrii* were *parici* who were freed through purchase. They had to pay the same fifty *besants* per year as well as an annual tax to their lords. The *lefteri*,

francomati or freedmen were *parici* who were freed through payment or by earning the goodwill of the lord (Karouzis 1977: 26). Unlike the *parici* the *francomati* were allowed to leave their lord's land (Richard 1985: 270-271).

During the period of Venetian rule the majority of peasants were *francomati*. These *francomati* were required by the governor to give 36 days a year of free labour with a team of oxen in return for a salary (Richard 1985: 270-273).

Tensions between the Ottoman Empire and Venice came to a head in 1570 when Venice refused Istanbul's demand that they cede the island to the Ottoman Empire (Stiles 1989: 100). In reaction, Ottoman forces landed in July of 1570 and by September 1571 Famagusta, the last Venetian stronghold, surrendered to the Sultan Selim II (Stiles 1989:100).

1.4.5 Ottoman period (1571-1878)

Muzaffer Pasha was appointed Beylerbey of Cyprus immediately following the Ottoman take-over (Hill 1952: 2). In September 21, 1572, a firman was issued for the resettlement of Cyprus. Settlers were brought from Anatolia to supplement the depleted population and to help it recover from the recent war (Gazioglu 1990: 74; Hill 1952: 18-20). By the end of the seventeenth century the estimated number of settlers from Anatolia was between 20,000 and 30,000 (Gazioglu 1990: 78; Hill 1952: 20).

Cyprus was divided into *kazas* or districts. By the nineteenth century the island of Cyprus had been divided into six of these districts: Degirmenlik, Maghusa, Tuzla, Lemesun, Baf and Kerynia, which were then subdivided into sixteen sub districts called *nahiehs* (Gazioglu 1990: 103; Hill 1952: 6-7). Each district had an administrative council that had power within its district. Members of these councils were appointed by the governor and consisted of three local 'Cypriot' inhabitants and three 'Turkish' members who were elected by their respective communities (Gazioglu 1990: 101). A headman, or *mukhtar*, and elders administered the village while reporting to the Governor.

Ottoman administration relied heavily on pre-existing power structures (Sant Cassia 1986: 3-4). For example, under the Imperial millet administrative system the Greek Orthodox Church politically represented the Cypriot people and collected their taxes. It is not surprising that it was during this period that the church gained power and wealth (Sant Cassia 1986: 5-6).

Monastic estates grew during the period of Ottoman administration as the territory they lost during the period of Lusignan and Venetian rule was gradually returned (Hill 1952; Sant Cassia 1986: 6). Land was also acquired through bequests, and land transfers from peasants who were unable to pay taxes and support their families (Sant Cassia 1986: 10-11). Large estates or *chiftliks* owned by the state were administered by agents who rented land to peasants in return for a certain amount of their income. Under Ottoman Law small-scale land ownership became possible. Although land was the property of the Sultan, farmers who worked this land were given hereditary status whereby peasants could pass tenancy to their heirs (Christodoulou 1959: 72; Karouzis 1977: 31). Taxes were paid in kind to the *sipahi*, a representative of the Ottoman state who both enforced laws and rented land (Karouzis 1977: 31).

In the middle of the 1800s a new land code was established that ended tenancy and divided land into *Arazi Mirie* (state owned land), *Arazi Memluke* (privately owned or mulk land), *Arazi Mevat* (*hali* or unoccupied land), *Arazi Metrouke* (land for the construction of roads or pasture) and *Arazi Mevcoufe* (or *Vaqf* dedicated land) (Christodoulou 1959: 72-73; Karouzis 1977: 33-34). These distinctions were maintained through the first half of the British Colonial period until they were abolished in 1945.

1.4.6 Early British Colonial period 1878-1920

I distinguish between two periods of British rule within this thesis: the period from 1878 to 1920 and from 1920 to Cyprus' independence in 1960. This distinction between periods is based on a variety of political and economic changes that occurred during and directly after WWI (Angelides 1996). I do not

address communication routes beyond the 1920s when the priorities of British rule changed.

It was the strategic position of the island of Cyprus that attracted British colonising forces to the island. The British wished to stop the Ottoman Empire from further expansion while preventing Russia from attempting to take the island and divide the country. Britain's interest in the Near East and Asia was threatened by Ottoman control of the island. Cyprus' rich resources made a secondary aim possible – to develop the island's resources making it “a model of prosperity and good government in the Near East” (Georghallides 1979: 3, 7).

Britain agreed to pay an annual tribute to the Ottoman Empire in return for taking over the administration of Cyprus (Schaar *et al.* 1995: 7). Money for the tribute payment came primarily from taxes imposed on the population. Prior to 1900 the payment was 50% of the total revenue, and in 1900 this amount was reduced to 35% (Angelides 1996: 210). Most of the island's population was employed in agriculture at the time of take-over. Some *chiftliks* were used throughout this early British Colonial period alongside subsistence level agricultural production.

Demarcation and control are themes that characterise the British Colonial period of Cyprus' history. The island and its population were controlled through the imposition of an elaborate infrastructure that included a new communication network, new administrative procedures and the survey of the population and landscape.

H.H. Kitchener, Lieutenant of the Royal Engineers, took four years to survey the island of Cyprus. This map was a physical representation of the new territory and the British control of it (Harvey 1991; Schaar *et al.* 1995: 24). His map that was published in 1885 was essential for later cadastral surveys, censuses and road building projects (Given 2002: 8; Schaar *et al.* 1995: 24; Wallace and Orphanides 1996: 62). The Forest Delimitation Commission drew on geographical information from Kitchener's topographic map to mark the uncultivated non-private land and designated areas with scrub, forest or brushwood as State Forest

(Given 2002: 14; Thirgood 1987: 105). Cadastral surveys soon followed between 1909 and 1929 when land ownership and its value were registered (Given 2002: 7-8).

The period of the 1920s onwards to Cyprus' independence had a very different focus. Tension between the British Government and the people of Cyprus increased throughout the mid to late 1920s until the 1931 revolt (Angelides 1996: 215). Communication changed throughout the island in the 1920s when increased mechanisation changed resource extraction techniques and modes of transportation.

1.5 Pottery chronology

Pottery is dated using the pottery chronology adopted from the Troodos Archaeological and Environmental Survey Project (TAESP). The main periods relevant to this thesis are listed below in bold font and where appropriate are subdivided into more discrete periods.

Cypro-Geometric to Archaic	1050-475 BC
Classical to Hellenistic	475-31 BC
Cypro-Classical	475-312 BC
Hellenistic	312-31 BC
Hellenistic to Roman	312 BC-AD 750
Late Hellenistic to Early Roman	200 BC-AD 200
Roman (Early-Late)	31 BC-AD 750
Early Roman	31 BC-AD 300
Late Roman	AD 300-750
Byzantine	AD 750-1191
Medieval	AD 1191-1571
Early Medieval ('Byzantine')	12th-13th c. AD
Middle Medieval ('Frankish')	14th-15th c. AD
Late Medieval ('Venetian to Early Ottoman')	16th c. AD
Medieval to Ottoman	AD 1191-1878
Medieval to Modern	AD 1191-2000
Ottoman	AD 1571-1878
Ottoman to Modern	AD 1571-2000
British Colonial	AD 1878-1960

Figure 1.4 TÆSP: Period Codes

1.6 My approach

There are several ways to write a thesis. I have opted for the less mechanical, more illustrative and, at times, more thematic approach. Where possible I use what some may view as simplistic but illustrative terminologies to refer to road, path and route formation and maintenance.

This thesis is divided into seven main parts. This chapter (Chapter 1) sets the background to the research, focussing on Cyprus as a whole, the foundations of road and path research, the island's historical background, chronologies used to date material remains, and ways to approach the document as a whole. The theoretical basis for communication and interaction is set up in Chapter 2 where roads, paths and communication routes are established as material culture. Here the role of roads and paths is explored both with reference to power negotiation and deconstructing these social relations through postcolonial discourse. The link between the material culture of roads and paths and the actions of daily life are illustrated through examples from my childhood and work on the family farm. It is important that landscape is not viewed as synonymous with environment, nor as a backdrop to communication. Instead landscape, human movement, interaction and the material form of roads and paths are entwined and mutually define each other.

The methodology employed to investigate communication routes is divided into four main sections: the background to individual survey zones, method of discovery, recording methods, and survey assessment (Chapter 3). In some cases more than others, geology and vegetation influences why the survey zones were chosen. As a result, descriptions of geology, environment, and vegetation are included within these short introductions. Unlike previous scholars, I systematically survey communication routes. Purposive survey techniques are applied when systematic survey is not feasible or if routes lie outside intensive survey zones. Systematic survey is augmented with purposive techniques when systematic survey is not feasible or if routes lie outside intensive survey zones. Through excerpts of forms used in the field I review and illustrate the recording process used throughout my fieldwork. I include a separate section that addresses

positive and negative aspects of ‘solo survey’ (surveying alone), and discuss it as an approach to locating communication routes because this is the first systematic Road Unit survey of its type. In this section I address questions such as whether solo survey is a viable and valid technique. Limitations of survey data and their interpretations are also included within this final part of the methodology.

Data collected in the North Palekhori Survey Zone (Chapter 4), the Mandres Survey Zone (Chapter 5), and the Akamas Peninsula Survey Zone (Chapter 6) are presented sequentially moving east to west across Cyprus. Each individual data chapter includes a ‘landscape history’ section relevant to that survey zone that includes historical background, past archaeological work and land use summary. Due to the nature of the collected data, and dating restrictions, data within the North Palekhori and Mandres Survey Zones are discussed by topographic area and then by overall theme. In the North Palekhori Survey Zone (Chapter 4) discussion is divided into three main sections: the location and analyses of paths found in specific locations; the overall meaning of the route morphology; and a general interpretation that brings the material form of the road into its social and historical context. Communication routes related to medieval estates and movement between village and fields form an important part of this chapter.

Data from the Troodos Archaeological and Environmental Survey Project form a foundation for interpretations of communication in the Mandres Survey Zone (Chapter 5). Geographical regions are used as organisational categories that have relevance to both land use and topography. Therefore interaction within the plains, foothills and mountains is discussed separately before being broadened in Chapter 5.5 where three main communication routes that link plains to mountains are discussed with relation to path construction, maintenance and focal areas for activity.

Abundant pottery from the Hellenistic to Late Roman time period in the Akamas Peninsula Survey Zone (Chapter 6) made it possible to date communication routes more securely and therefore this is the only survey zone where a chronological approach is taken. The landscape background section incorporates environmental,

topographical and land use information for each period relevant to the study of communication in the survey zone. Sea and land based communication routes are addressed within this chapter drawing on previous research on communication routes by Bekker-Neilsen (1995: 2004). The nearby work on the western side of the peninsula completed by the Danish Akamas Project (1995) provides a wider context to data analyses within this survey zone.

Common themes found within all survey zones include: the socially embedded material form of roads and paths, the morphology and formation of roads and paths, the entwined relationship between landscape, movement and road/path form, and the role of roads and paths in power relationships (Chapter 7). These topics are explored by bringing together specific examples from individual survey zones. The British Colonial road building policy is used as a case study to discuss the socially and historically situated position of road building. Roads, paths and communication routes play a role in the negotiation of power through the landscape. The entwined relationship between humans, our movement, tasks, how we mark out our world and play out relationships of power, are acknowledged and celebrated today in the symbols and messages that we actively position on, or alongside communication routes (Chapter 7, Chapter 8).

This thesis follows conventions set out by archaeologists working in Cyprus where sites are listed by village territory and locality name. Locality names and foreign words are always italicised while Greek proper names are not. To aid in re-locating localities by other researchers the spelling of locality names and place names match those on cadastral plans. A comprehensive list of terms and definitions used within this thesis is included in the glossary.

2 Theoretical Approaches to Communication Routes

The aim of this chapter is to establish the theoretical framework with which to address the study of communication routes contained within this thesis. I review only those aspects of theoretical discourse directly relevant to this study of communication routes.

I begin this chapter on theoretical approaches to the study of communication routes by considering their place in material culture studies. Once established I proceed to discuss the theoretical approaches – resistance, postcolonialism, agency/practice theory and landscape – that inform my interpretation and how they are embedded in power relations. Throughout this chapter I draw upon a variety of examples to illustrate the more complex theoretical issues involved in this study.

2.1 Communication routes as ‘material culture’

In this thesis I look at communication routes in a new and more dynamic, interactive manner. My intention is to view them both in their socio-cultural and economic context at all times regarding them as a distinct type of material culture.

My approach to the study of communication routes is two-dimensional. First, I approach roads and paths as material culture with distinct features and morphological differences. Secondly, I study roads and paths as communication routes in their social, cultural, historical and economic contexts. The social context of a communication route, the actions and interactions in which it is entwined, are part of its material culture. The biographical approach to material culture provides insight into how communication routes may be interpreted. Gosden and Marshall (1999) use the term ‘object’ to refer to material culture. They accept that objects accumulate histories throughout their existence. Meaning is formed and transformed through time and social interaction (Gosden and Marshall 1999: 169, 170).

When viewed in this way, the materiality of a communication route becomes the result of an interlocking of histories. The material form of a communication route

at any given time is woven from the people and actions in which it is involved. People and routes of communication are bound together in an ever-changing relationship (Gosden and Knowles 2001: 22-23). Unravelling this relationship means untangling the material culture of communication routes through route biographies.

Archaeology offers the only means through which we can begin to understand the ways that people communicated through space in antiquity, by interpreting the physicality of the road and/or path but then going beyond it to unravel the subtleties of their biographies (Gosden and Marshall 1999: 169-170). By analysing material culture in its various social, cultural and historical contexts I hope to assess the social relations of which they were once a part.

Understanding the relationship between people and objects is important to conceptualising how material culture is involved in the practices of daily life. Gosden and Knowles (2001: 22-23), are correct to state that “deep mutual involvement of people and things means that much social life is achieved through objects and is influenced by the qualities and properties of those objects”. As part of the daily activity of movement through the landscape, the study of communication routes offers an intriguing opportunity to understand the web of relationships of which they formed a part. This active view of material culture is maintained throughout the body of this thesis. Roads and paths are not merely the outcome of a process, but are instead active elements in this process. Thus Gosden and Knowles (2001: 4-5) rightly argue that objects are “best viewed as indicative of process, rather than static relations, and this process is ongoing”.

As will become evident in the section to follow, material culture plays active roles in the negotiation of power. Objects change meanings as they are understood and reinterpreted through time by players in these struggles.

2.2 Power

Power is a theme that is embedded in all the theoretical approaches discussed within this thesis. Power and power relations form the basis of postcolonial, resistance and agency theory. They are intertwined in all social relations and

networks – power is the ability to alter events (Foucault 1994: 343; Paynter and McGuire 1991:13). Foucault (1994) was the first to see that power need not be negative and repressive. Instead he saw power as an element of all societies – of all social relations (1994: 343). Today Foucault’s ideas have been supported by others who share the view that power can be a positive force and not synonymous with domination (Foucault 1977; 1980; Miller and Tilley 1984: 7).

Definitions of power are varied and largely dependent on the context in which power is exercised. My definition draws upon Foucault (1994), Miller and Tilley (1984), Paynter and McGuire (1991) and Sharp *et al.* (2000). Power is not a uniform force that acts upon people. Whilst I agree with the basic tenets of power as discussed by Foucault, I disagree with his belief that individuals own power. Instead I see power as a process that is enacted. Power is diverse – it exists within all social relations; it is used to deny, constrain and set limits (Miller and Tilley 1984: 5-7). Power is a mechanism used by different actors; it “can ‘do’ nothing but say no; to deny, to constrain, to set limits, to prevent the actualization of human potentialities in one way or another” (Foucault 1977; 1980; Miller and Tilley 1984: 5). Power is a management of possibilities (Foucault 1994: 341).

Some have made the distinction between ‘power to’, and ‘power over’ (Benton 1981: 176; Miller and Tilley 1984: 5). Everyone involved in social relations has the ‘power to’, while ‘power over’ on the other hand, acts to restrict the actions of others. ‘Power over’ is associated with domination and resistance studies. Current discussions of power relations in anthropology, archaeology, geography, etc., focus upon this domination/resistance dialectic. But because power relations are caught up in social networks and patterns, there always exists the power to overcome, surmount and overthrow those in control (Foucault 1994: 354; Miller and Tilley 1984: 7). Power may at one time be repressive, at another, empowering.

Power relations also take place in physical landscapes. These landscapes are the arenas where space is manipulated and power negotiated. Space is integral to the negotiation of power (Rabinow 1984: 252). Space is actively drawn upon to negotiate ‘power over’ and ‘power to;’ it “is fundamental in any form of

communal life; space is fundamental in any exercise of power” (Foucault 1994: 361). The landscape in which power relations are played out need not be elaborate, nor the negotiation overt.

Power struggles are complex with space being negotiated by all players. Manipulation does not always go in one direction. Those wielding power may have that power turned on them, or used against them. To illustrate both the complexity of power relationships and the importance of space in this active negotiation, I now turn to a recent situation that involved a second year tutorial group at the University of Glasgow. This example will be drawn upon in later discussions of resistance.

It was Thursday morning at 11:04. I aimed to be in the tutorial room to meet the students at 11:00 but I was held up in the Department. I arrived to a room full of students sitting around a long rectangular table. The tutorial group knew me from a previous tutorial but hadn't been in the room before. Inside the room students were seated around the table with their notebooks and pens in front of them. The room was silent. Only one position around the table was free. This chair was located at the head of the table closest to the door. Whoever sat in this position would control not only what behaviour took place in the room but physical access to the room – who left, entered and when. Anyone arriving late would have to walk past this chair in order to come into the room. This position at the table was clearly meant for me.

The students collectively manipulated the space in the room in order to assert their control. Interestingly, they chose to put me in a position of control/power. They assumed that I would accept this position, possibly even be honoured by the position that they gave me. Because I accepted this position, I lived up to their expectations. I controlled the interaction that took place in the room – I took attendance, prompted discussions and told them when they could leave. But who was really in control? *They* gave the position. I had little choice but to take that seat.

It can be assumed that the interaction that took place in the tutorial room was the result of years of conditioning by previous teachers, lectures and tutorial groups. The expectation was that the students were to be taught by someone who was older and knew more. This knowledge automatically made the tutor more

powerful. However, when faced with an unknown or uncertain landscape, the students took the opportunity to assert their control. By deciding where I would sit they could decide where they would sit – determine what proximity they wanted to this person in control. The closer to me that they were, the more likely I would call on them. Likewise, I knew that I was in control – I started and ended the session when I wanted, and prompted the students to talk during the tutorial. But how did I react to being given the chair at the head of the table? I was surprised and uncomfortable. Surprised because they saw me as an authority figure, and uncomfortable because they had manipulated me to sit where I didn't want to.

Individual and group players actively engage the landscape in order to negotiate power relationships. Even though I saw the student group as a unified whole because of my position within the classroom, it was in fact composed of socially differentiated individuals with different aims and goals where power was actively negotiated and dominance expressed on many different levels. Landscape can be manipulated to encourage or discourage certain types of interaction (McGuire 1991: 108). The space of the classroom was the dynamic medium through which the struggle for domination and resistance was played out (Sharp *et al.* 2000: 28). It is here that the importance of archaeology and geography becomes apparent. It is through the systematic study of landscape and the patterns of past behaviours over and through that landscape that we may be able to unravel the intricacies of power struggles.

I return to the theme of power throughout this chapter. In the following section I look deeper into power relations to discuss the domination/resistance dialectic that has been exemplified in part by the tutorial situation. I hope to illustrate some of the difficulties involved in pinpointing resistance in the archaeological record. I conclude this section with the definition of resistance that I will apply to the study of communication routes throughout the body of this thesis.

2.2.1 Resistance

The term 'disenfranchised' has been used by Sandra Scham (2001: 188) to refer to those repressed in power relationships. To her, the disenfranchised include "the

formerly colonised, the marginalised minorities, and the nationals of places that have been subject to invasive foreign control...”. I have chosen to follow the example of many theorists who separate the study of the disenfranchised into postcolonial theory and domination/resistance theory.

Resistance theory continues to be explored in the attempt to understand more about the interaction that takes place in power relations. Domination has been explained as the “exercise of power through control of resources” while resistance studies relate to those opposing this relationship of power (Paynter and McGuire 1991: 1, 10). Because domination takes place in everyday activities, so too does resistance (Paynter and McGuire 1991: 9). Domination and resistance are reflective of one another – without one the other cannot exist, “domination and resistance are mutually constitutive of, one another” (Sharp *et al.* 2000: 1).

Many anthropological and geographical studies have focused on peasants (Scott 1985), aboriginal populations (Dyck 1991), the working class (McGuire 1991) and other marginalised groups in an attempt to understand resistance and its various components. Studies such as those completed by Scott (1985) and Adas (1986) focus on ethnographic accounts of peasant resistance. Though these studies give the false impression that behaviour within a power relationship can be categorised and classified, they usefully differentiate between different scales and types of resistance that can be applied elsewhere.

In general, resistance ranges from subtle acts with limited danger to more open and confrontational acts that place the resister at more risk. Everyday forms of peasant resistance are “weapons of relatively powerless groups: foot dragging, dissimulation, false compliance, pilfering, feigned ignorance, slander, arson, sabotage, and so forth” (Scott 1985: 29). These subtle acts are unlikely to have a revolutionary effect on power relations. Instead, as will be discussed later, these everyday forms of resistance act to build a sense of identity and group solidarity. Open acts of defiance such as direct confrontations and open protests occur when there is sudden and severe change that disrupts everyday routines of living and threatens people’s livelihood (Scott 1986: 12). This form of resistance is seen as a

‘last resort’ amongst peasants as it may provoke a violent response from those in positions of power (Scott 1985: 33).

Regardless of form, the basic goal of all acts of resistance is to disrupt power relationships. There is no one type of resistance for every situation. As power relations are constantly changing, forms of resistance must adjust. The choice of whether to resist the power relationship and if so, how, may change daily or hourly. Likewise, groups or individuals may alternate between different types of resistance depending on the circumstances of the power struggle (Scott 1986: 28).

To illustrate this, I turn back to the example of the tutorial group. It is evident from this example that domination and resistance is a ‘two way street’. Power is not unidirectional but is a dialogue between players that change roles continually. Everyone has the power to alter events, and the “structural orders of power are reproduced in their subtle interplays in daily life” (Paynter and McGuire 1991: 13). The students in my tutorial group altered the power relationship in the room by modifying the space, telling me where to sit and what they expected of me. I in turn accepted the dominant position but soon moved my chair to one side – away from the head of the table. Power in the room moved between individual students and myself several times during the course of the tutorial. I may have held the power to ask the questions but they could choose to answer them, or remain silent (Scott 1985). Within every act of dominance there was the seed of resistance (Sharp *et al.* 2000: 20).

Overall, resistance, whether it takes the form of direct confrontation or petty acts, has two notable outcomes. First, resistance challenges the power structure. Secondly, in confronting the dominant power, the identities and values of the resistor(s) are formed, confirmed or even celebrated. This was the case in the tutorial group, where the displays of power that took place were not what Scott (1985), Adas (1986) or others would classify as being the actions of powerless groups, nor were they collective acts of defiance. Instead they were the acts of a group of individuals defining themselves and maintaining their position in the student-tutor relationship. When identity or tradition is maintained consciously in the presence of a more dominant identity, this is in itself an act of resistance.

Alcock (1997: 111) has classified this as the process of self-definition and cultural separation where the landscape is the product of a dialogue between various players in the power struggle.

Archaeologists such as Mattingly (1997: 135) urge fellow archaeologists to explore the gradations of behaviour involved in resistance. The subtle interplay between power and resistance, however, makes it difficult to locate acts of resistance archaeologically. Resistance may be suggested through the study of key objects involved in the struggle for power. The interpretation of these objects is complicated by the fact that their meanings likely have changed gradually but regularly throughout their existence (Hingley 1997: 88-90). This dynamic nature of objects involved in power relations must be acknowledged in our archaeological interpretations (Hingley 1997: 87-88). A promising archaeological study of resistance comes from Casella's (2001) excavation of a female convict settlement in Tasmania, Australia. Through the analysis of material remains and space within the prison, acts of resistance were found. Evidence of the movement of 'illicit' materials such as bottles and buttons in the segregated and disciplined prison landscape suggests coordinated acts of resistance (2001: 117).

Although much of the study of resistance is based on data from the excavations of domestic space, there is promise for developing such studies through landscape archaeology. Studies such as Given (2004b) accept and draw upon the belief that landscape is not a passive backdrop for action; it *is* the action (McGuire 1991: 108). As a result the physical landscape is inseparable from the power relations that take place on it.

As integral parts of daily routine, roads and paths offer an intriguing opportunity to investigate both subtle and overt forms of resistance. Daily or routine acts of resistance such as those discussed by Scott and Adas may be identified through the detailed study and comparison of road and path morphology. For example, from the investigation of changes in route morphology it may be possible to suggest reasons for the modification of a route's course. Likewise, by looking more deeply at the placement of communication routes in the landscape through GIS analysis, alternative or hidden routes may be located.

It is likely that overt displays of resistance such as acts of sabotage and collective acts of defiance will be more visible from the archaeological remains of communication routes than the more discrete indications from daily acts of resistance (Scott 1986: 12). Sabotage of roads and bridges is evident in archival accounts from British Colonial Cyprus (see Chapter 7). Archival documents from this period show that resistance was not always consistent. Initially in the 1880s resistance to the construction of roads took the form of sabotage and pilfering but by the early 1900s resistance had changed to more subtle forms. Villagers learned that they could assert their power by drawing upon the colonial discourse that was used by government officials to subordinate them. For example, in the early 1900s villagers used the colonial infrastructure and language to petition the government to improve inter-village access through the construction or improvement of communication routes (SA1/134/1902; SA1/885/1913). It can be assumed that similar acts of resistance took place prior to this period in response to changes brought on, for example, by colonial regimes such as the Romans, Franks etc.

Moving on from resistance studies per se, van Dommelen (1997; 1998a; 1998b; 2002) and others have looked to archaeological examples of resistance amongst colonising regimes. In the section to follow, communication routes are discussed with relation to such regimes, and to postcolonial theory.

2.2.2 Postcolonial approaches

Colonialism is not unfamiliar territory to the discipline of archaeology. Much archaeological interpretation concerns either the effects of the colonial encounter on past cultures, or the effects of the discourse of colonialism on past and present archaeological representations and interpretations (van Dommelen 1998a: 18). Within this chapter I define colonisation as the establishment of control and administration by a foreign power in an area outside of that which it controlled previously. The transfer of population from the colonising force to the new 'polity' is characteristic of most colonial situations, while the socio-economic relationship that is produced through this power relationship is asymmetrical (van Dommelen 1998a: 16).

Interaction in the colonial context is littered with struggles for power. Colonisation is the attempt by one society/group to transform another society/group into something different; it is a “socially transformative endeavour” completed through the imposition of new social orders (Thomas 1994: 105; 2002: 182). Not synonymous with domination per se, colonisation is instead the quest to produce relations of domination (Thomas 2002: 182).

This new social order establishes itself through both the physical features of colonisation – the establishment of new administration, communication, sanitation, etc. and the creation of new forms of knowledge and stereotypes about the newly colonised people (Bhabha 1986: 154; van Dommelen 2002: 129). The production of stereotypes and associated knowledge objectifies colonised groups. The ‘Other’ is created and maintained through this objectification as so famously observed by Said (1986: 215; see also Bhabha 1986: 154; Foucault 1994: 340).

As suggested by the above, the colonial encounter is complex. Postcolonialism is an approach that celebrates this complexity – it is the attempt to unravel the intricacy of interactions by acknowledging the various actors involved and the power that they wield (Sharp *et al.* 2000: 20; Thomas 1994: 3). Postcolonialism is a period of time (following the colonial period), an approach, and a state of being. As an approach, postcolonialism seeks to reassess power relations expressed through colonisation by deconstructing the colonial discourse – the way that knowledge about the coloniser/colonised was created and how these relations have been portrayed (van Dommelen 1998a: 26; Said 1978: 3; Webster 1996: 7-8).

This dualism, the binary separation of the coloniser and the colonised, is a theme that appears to flow through colonial discourse (van Dommelen 1998a: 20-21). Initially produced by the colonial power through the construction of the ‘Other’, it reproduces itself time and time again in both the literature from the period and later in archaeological interpretations of colonial situations (van Dommelen 1998a: 21). This simplistic view acts to reduce diverse societies into static entities that in turn “reduces colonialism to a mere confrontation between two

independent and separate cultures” (van Dommelen 1998a: 21). Problematically, this separation also denies the individual and collective identities of those within these bounded categories, assuming instead that each group possesses the essence of a true pure identity (van Dommelen 2002: 123; Webster 1996: 6). By looking beyond the constructed categories born out of the 19th and early 20th century literature, postcolonial theory is an approach that looks to the interdependent relationships that exist between the colonised and colonisers (Hall 1996: 69-70). Postcolonialism aims to understand the interconnected relationships that exist within colonisation by accepting that no one society is a cohesive homogenous group. Within any given society there are a variety of groups, each with their own interests and intentions (van Dommelen 1998b: 33).

It must be realised that the actors involved in colonial relations are historically situated – their interaction must be understood in the proper historical context (Hall 1996: 69-70; Thomas 1994:106). There is no one type of colonial encounter, as the conditions under which colonisation occurs are always different. For example, one cannot assume that the British colonisation of Oceania will be comparable to their colonisation of Cyprus, as not only are the cultures involved different and the historical circumstances surrounding colonisation in these areas so varied, but the stereotypes involved in the colonisation dialectic are different.

For example, part of the British colonial policy in the South Pacific involved the conversion of ‘heathen’ subjects to Christianity. This religious aspect to colonisation came along with attempts by missionaries to impose new ideas about sanitation, work and modesty (Thomas 1994; 2002). The interest in Fiji was combined with a paternalistic and protective attitude and as a result colonisation was seen to be “an operation of welfare rather than conquest” (Thomas 1994: 124, 107).

This policy is very different from that of the British colonial policy in Cyprus, where Britain aimed to “make Cyprus a model of prosperity and good government in the Near East” (Georghallides 1979: 7). There were two main themes at work in the creation of this policy. The first was the quest to gain a strategic position in the Near East by taking over the island from the Ottoman Empire. Related to this

was the fact that the Ottoman Empire was seen as decadent, and unable to rule effectively without assistance (Georghallides 1979: 3). It is evident from such statements that Orientalism – as a means of describing and producing knowledge of the Orient – was already being integrated into policy (Said 1978: 3). Even today this orientalist discourse still influences discussions of the Ottoman period history in Cyprus.

To summarise, then, it can be said that although colonial policy may reflect the intentions of policy makers, the overall process of colonisation is dependent on individual actors involved in the colonisation process. Van Dommelen (2002: 142), among others has found that to understand the entwined relationships within colonial situations, colonialism needs to be considered on a local scale (Thomas 1994; 2002). When viewed in this way it becomes evident that within colonial situations coloniser and colonised are not static and unchanging, but are constantly reassessing their identity and social position (van Dommelen 1997: 309). Thus interaction acts to blend cultures through the “reworking of various elements rather than merely combining two complete cultures.” (1997: 309). The outcome of this process has been termed hybridity. By accepting some elements from the foreign group while rejecting others, individuals on both sides of the colonial divide create distinct identities (van Dommelen 1997: 309).

In the quest to understand colonisation on a local scale archaeologists have analysed objects and landscapes with the understanding that they played key roles in colonial culture (Gosden and Knowles 2001: 24). Archaeological investigations of the role of objects in the colonial process have been documented in a series of studies from Africa to Oceania and Sardinia (Kelly 1997; Thomas 1994; 2002; van Dommelen 1997; 1998a; 1998b). For example, through the analysis of material from the Punic and Roman Republican periods in west central Sardinia, van Dommelen (2002: 127-129) found evidence of the complexity of the coloniser/colonised relationship. The subtle variations in the use of local Punic and foreign Republican material culture provide evidence of the “ambiguous (or murky) nature of colonial situations” (van Dommelen 1997: 320).

Such studies pave the way for further archaeological investigations of colonial encounters. The postcolonial approach to material remains helps to create new visions of the colonial past, bringing awareness to the use of power by all actors and the role of objects in this negotiation. Landscape archaeology has a unique role to play in understanding the intricacies of colonisation. As discussed previously, social relations and power negotiations are played out through space. As the arena for social interaction, landscape analysis provides a fruitful part of archaeological investigations of colonialism (van Dommelen 1998b: 34).

One aim of my research is to address the role that communication routes play in colonisation. I maintain that roads and paths were involved in power relations played out across the landscapes in antiquity. Within this thesis I aim to re-interpret communication routes or features of communication routes in the light of postcolonial discourse. Through the analysis of communication routes it may be possible to deconstruct the power relations that existed between coloniser and colonised and the role that roads and paths played in this interaction.

Cyprus holds an interesting position in colonial discourse. This island's location in the Mediterranean has made it a popular possession that has changed hands at least six times within the last 2050 years. Thus far, Cyprus has been relatively untouched by postcolonial analysis. As I discuss in Chapter 5, there are many elements to the archaeological and historical interpretations of the Cypriot past that suggest the continued existence of both a colonial and Orientalist discourse. This discourse is submerged within, fed and maintained by current political and ideological undercurrents on the island.

Throughout history colonisers saw the construction of communication networks as a way of bringing order and civilisation to new colonies. Therefore communication routes were essential elements of colonial infrastructure. For example, the construction of roads was the first order of business in Cyprus when the British took control of the island from the Ottomans in 1878. Roads and paths were expressions of power and control. Construction of roads such as the Via Appia in Italy between third and fourth centuries BC was symptomatic of the

power of Rome while it reinforced or confirmed that leadership to Rome's allies (Laurence 1999: 13).

It must be realised that this is a one-sided view of the role of roads in the colonisation process. Through the application of postcolonial theory it is possible to deconstruct such an oversimplified interpretation. For example, as discussed previously, some of the local population of Cyprus resisted the British imposition of new communication networks through actions including the sabotage of bridges and pilfering of stone from roads. Cypriots were not completely opposed to these new roads and paths but instead used them when they suited their needs. Villagers drew upon colonial discourse using terms such as 'civilisation' while strategically placing emphasis on economic and cultural improvements when petitioning the Government for the construction of new roads and paths. Thus the 'colonised' had considerable influence on the construction of communication routes in Cyprus. Whether coloniser or colonised, communication routes were built, used and modified by individuals with a range of specific motivations. The effect of such interaction both on the individuals and the route of communication will be discussed in terms of practice theory in the section that follows.

2.3 The theory of practice

The theory of practice will be used throughout the body of this thesis, drawing heavily upon the concept of *habitus* and bodily practice as discussed in the works of Bourdieu (1990), Gosden (1994) and Dobres (2000). I have decided to follow these works specifically because of the attention they give to the temporal aspect of collective bodily actions. Dobres' application of practice theory to technology is especially useful as it highlights the dynamic nature of material culture, looking at the deeper implications of how technology and person are joined in mutual definitions. In the section to follow I aim first to review briefly the basic tenets of practice theory as applicable to my data. I illustrate how practice theory is used to interpret communication routes through a practical example.

Practice theory seeks to explain the social relations that exist between people and the material world. The theory of practice looks deeply at how human action and bodily experience is involved in this process (Dobres 2000: 162). The basic tenet

of practice theory lies in the belief that the “broader organizational principals and cultural categories of individuals” in society are reproduced through daily practices (Lightfoot *et al.* 1998: 201). Through the study of these practices and the material culture involved in them, we should better understand how people in the past lived.

Practice theory insists that knowledge is actively constructed and that this construction is influenced, if not dependent upon, certain structuring dispositions that Bourdieu (1990: 52) terms ‘*habitus*’. *Habitus* is the subconscious collective spirit or “second nature” that is produced and reproduced through human action (Gosden 1994: 119). Actions or practices are entwined in certain historical and social contexts. These contexts, in turn, both define and limit *habitus* (Bourdieu 1990: 55). *Habitus* is bound to the human body – it is through the body that it is played out (Dobres 2000: 137; Gosden 1994: 119). *Habitus* is cumulative, always building upon the previous action and actor; it “structures new experience in accordance with the structures produced by past experiences” (Bourdieu 1990: 60).

Action cannot be separated from its temporal components – in fact much of the meaning of action and practice comes from its “temporal structure, that is its rhythm, its tempo, and above all its directionality” (Bourdieu 1990: 81). These aspects of time have been investigated further by Gosden who has divided time into public time and habit. Habit is directly related to the concept of *habitus* and is the repetition of action using “knowledge of the past to create future action” (Gosden 1994: 124). Unlike habit, public time refers to action that is consciously used and manipulated. Overall there is little distinction between habit and public time. Action at one point may involve the conscious use of time but then once learned by the body and integrated into *habitus*, becomes habit (Gosden 1994: 125-126). One can imagine a tinker travelling from village to village at first quite unfamiliar with the route, the schedule and contacts etc., but once the tinker’s knowledge expands, and becomes more familiar with the landscape, the people and the scheduling, the practice becomes second nature. The temporal aspect of actions associated with the construction, maintenance and use of communication routes is highlighted in the body of this thesis.

Technology as seen in practice theory is an aspect of daily practice wherein humans both express and transform their *habitus* through endeavour. Technology as discussed by Dobres (2000: 130) is “a web that both metaphorically and literally weaves together people and their products”. Technology is part of daily practice that is a means of reaffirming, redefining and reproducing social and cultural relations. The production and use of material culture is part of the daily practices where the material, the social and the symbolic are woven together (Dobres 2000: 131). This holistic view of technology focuses on material culture as active elements in the daily practices of life instead of isolated end products of action. This interactive view of material culture makes practice theory an applicable method for the study of communication routes. Within the body of this thesis I approach roads and paths as material culture constructed, used and maintained by agents. By applying Dobres’ integrated idea of practice and technology to communication routes I address how the material culture of routes is entwined with the embodied actions of agents, their values and motivations. As stated by Dobres (2000: 127), “people and the material world simultaneously constitute, shape, and are shaped by each other”. Thus the actions of these people affect the morphology of the route which in turn acts to solidify and reaffirm their socio-cultural values (*habitus*). This process ensures that communication routes and the people that use them are never static and unchanging entities. Instead communication routes are entangled in a web of redefinition.

To illustrate how practice theory relates to the interpretation of material culture and everyday practices I use two examples from my childhood of the work I did while growing up on a farm: cutting thistles and collecting branches. Drawing upon my past, my past actions and the material culture involved, I have already accepted that there is a deeper meaning to these activities. These are micro-scale examples of *habitus* and practice theory (Dobres 2000: 144).

Every summer it seemed that an eternity would pass while my family walked across the fields seeking out thistles to chop down with our grass whips. No matter what activity, pleasure walks in the woods or trips to see the frogs in the lake, we were always armed with grass whips in the summer. This task of cutting thistles was always done with grass whips. I only ever knew them to be used for this one specific, specialised task. Our grass whips were old – inherited from my grandparents on my father’s

side, along with a variety of knowledge about how and when to cut thistles. Each whip was slightly different: one whip with a green fitting, two with gold, and one with a rusted fitting. The handle of one of the two gold whips often came loose leaving the user suffering from blisters from grasping the metal rod. The other gold painted grass whip was the best – its handle was smooth and blade strong. My brother and I fought endlessly over who got which whip. Cutting thistles involved a swing similar to that of golfing. The overall aim was to cut the thistle off as close to the ground as possible without injuring the pasture or spreading thistle seeds.

With the storms of the winter months ‘picking limbs’ became ever more important. The first branches to be picked up were usually those directly impeding movement from Point A to Point B. From there we would then turn our attention to the fields, then to those old logging roads obstructed by branches and fallen trees. As most limbs fell during the winter months the spring was filled with rigorous gathering. ‘Picking limbs’ was a task that never officially finished – it was part of our daily existence.

Interestingly even today a walk in the forest at home is accompanied by grass whips and branch collecting. The farm landscape was an arena where certain types of culturally and socially relevant action took place.

Both cutting thistles and collecting branches are technical gestures (Dobres 2000: 152). Technical gestures as defined by Dobres (2000: 152) are “an embodied, mediated, meaningful, and collective practice”. *Habitus* is produced and reproduced most effectively through such gestures. The physical movement along the roads and through the fields picking up branches or swinging grass whips was an enactment of embodied knowledge and identity (Dobres 2000: 153). The term ‘tending’ is used throughout this thesis to refer to those practices related to care and maintenance of communication routes.

Tending practices such as cutting thistles and gathering branches exemplify how actions cannot be separated from their temporal components (Bourdieu 1990: 81). Thistles were cut with the knowledge and hope that the following year there would be fewer thistles. Likewise branches were collected to ensure that all fields could be accessed by tractor, to increase pasture and improve the appearance of the farm.

The time of the year determined when these tasks were carried out and how successful they were. The frequency of practice affects the meaning of both material culture and task. The daily practice of picking branches is a good example of this. Through everyday routine this action has become part of my physical being – so engrained in who I am, so much a part of my *habitus* that the geographical context of this action is no longer important. I am just as likely to remove branches from a path in Scotland as I am at home. Thus it could be said that I draw upon “knowledge of the past to create future action” – or more basically, that I have a habit of picking up branches (Gosden 1994: 124).

Cutting thistles only took place in the summer. It was a habitual action that was confined to a certain time period and attached to a certain type of material culture. Unlike collecting branches, this practice had a distinct start and end point. There was a narrow seasonal period in which thistle cutting could be done – between the time when they were in flower and went to seed. Because of the seasonal nature of cutting thistles it never became part of the *habitus* in the same way as collecting branches.

The grass whips were entwined in the social relations in which they were originally produced, maintained (sharpened by grandfather then father) and used (Dobres 2000: 131). This material culture influenced who we as actors in the process were, wanted to be, and are today. The practice of cutting thistles is embodied in the physical remains of this action – the grass whip. The physical remains of the grass whips retain those properties that trigger the anticipation of action (Gosden 1994:124). The physical features of a grass whip are entwined in a variety of feelings, memories and knowledge.

As is evident from the above example from practice theory, landscape plays an important role in the interpretation of human action. In the section to follow I address the concept of landscape and how I apply this approach to the study of communication routes.

2.4 Landscape theory

Throughout this chapter I refer to the concept of landscape with regard to power struggles, colonialism and the practice of tending. In the section to follow I return to the classroom example and those places associated with tending activities in order to look more deeply and practically into the making of landscape and its role in the analysis and interpretation of communication routes.

My definition of landscape draws heavily on ideas emerging from practice theory. Landscape is an arena for interaction but is not synonymous with topography. Here the distinction between explicit and inherent approaches to landscape perception is useful (Johnston 1998:54-64). When viewed through the explicit approach, the physicality of landscape and human awareness of this landscape is the focus. The inherent approach, which is followed throughout this thesis, sees landscape as more than a picturesque backdrop for activity. Instead, landscape plays an active role in the construction of *habitus*, and *habitus* influences the form and interpretation of landscape (Johnston 1998: 61-62). Humans produce and are products of the world they live in; “through living in it, the landscape becomes a part of us, just as we are part of it” (Ingold 2000: 191). Therefore at no one time is landscape fixed or stable. Instead landscape is a changing cultural entity – one that is intricately linked to changing actions and interactions (Nye 1999: 3). Human experience and landscape are embedded within each other, it is the “world in which we stand in taking up a point of view on our surroundings” (Johnston 1998: 66; Ingold 2000: 207).

In my first example, the tutorial classroom was the scene of the negotiation of power relations. In this section I made the clear statement that the classroom was a landscape, but why? Through the students’ action – positioning themselves in the room – the classroom was transformed from being a blank space in their known world to one punctuated with relations of power and acts of resistance. The space within the room, the tables, chairs, bodies and books were intentionally positioned to create a certain landscape – a way of making sense of the room in their world.

The practice of tending exemplified through the practice of cutting thistles and gathering branches was an expression of knowledge and identity or *habitus* (Dobres 2000: 153). The action of cutting and collecting, moving through the environment, the social interaction with my family and the passage of time, produced an ever-changing sense of landscape. The tasks that we as a family engaged in, the focus of our activity and methods that we used reflected a common perception of our landscape. Likewise, through the tasks of collecting branches and cutting thistles we as a family changed the landscape. My perceptions of landscape were based on the memory of previous summers of cutting thistles, the worst fields, using the bad grass whip and getting blisters... Remembering is “not so much a matter of calling upon an internal image, stored in the mind, as of engaging perceptually with an environment that is itself pregnant with the past” (Ingold 2000: 189). Landscape is an individualised perception of the world that is drawn from memories and traces of accumulated experiences from a range of time. By moving through the environment, holding the grass whip and carrying out the practice of cutting, these memories come to life to produce landscape.

Ingold (2000: 194) has created the term ‘taskscape’ to refer to this merging of temporality and history in the experiences and acts of agents. By drawing heavily upon the concept of dwelling and being-in-the-world as discussed by Heidegger, Ingold’s notion of taskscapes links movement, rhythm and action. Tasks such as the cutting of thistles or the gathering of branches, when approached in this way, derive meaning from their position “within an ensemble of tasks” (Ingold 2000: 195). Therefore, cutting thistles must be considered with relation to the gathering of branches, the harvesting of hay, the cutting of wood, the milking of cows, etc.

Landscape is very much like a patchwork quilt where the patches are all the interlinked events, tasks and actions. With each patch that is added, the quilt changes appearance. Feelings about the look of the quilt, the potential warmth, its size, the colours and textures change on a daily basis. In the summer the quilt looks too warm, in the winter it looks cosy. Overall the quilt, although made up of all those different pieces of cloth from all different garments and contexts, joins together to make one never-finished blanket. Each person has their own

personalised quilt that is produced through interaction with the world around them.

The major flaw in the idea of taskscape and landscape emerges with Ingold's distinction between the two concepts. Ingold (2000: 199) denies action to the concept of landscape by stating that "the landscape seems to be what we *see* around us, whereas the taskscape is what we *hear*". Landscape as "the congealed form of the taskscape" denies the entwined nature of human interaction and landscape formation. Because landscape consists of the world as perceived (heard, smelled, touched) through the acts of agents, as agents change so must the landscape. This concept becomes especially important when viewed in the context of communication routes. Landscape and communication routes are mutually transformed by each other through the daily actions (tasks) and intentions of agents. A perspective informed by practice theory and landscape, as discussed below, brings to light the entwined nature of these two concepts.

As noted previously, the material culture of communication routes, their construction, maintenance and use, is entwined in the embodied actions of agents – they are mutually dependent on each other for definition and redefinition. As a result it can be said that communication routes are part of the perceived arena where action is carried out and narratives of one's place in the world are constructed – the landscape.

Communication routes do not exist as a layer that can be placed atop landscape, as some appear to suggest (Zedeno and Stoffle 2003: 61). To view roads and paths as templates that determine interaction across space denies agents not only the ability to change and resist, but also denies the flexibility and mutuality of the relationship of humans, material culture and technology. Pathways do not "order human-land interactions" because the force creating the pathways comes from inside – from the human component (Zedano and Stoffle 2003: 61). Routes of communication offer options of moving through the environment but do not confine it; if a road or path does not suit one's needs, then it will be modified.

Movement is integral to the making of landscape – it is the way that humans make “‘spatial stories’, forms of narrative understanding” (Tilley 1994: 28). Such narratives are produced as agents move along a road or path. Movement solidifies the course of the route in the context of its surrounding meanings. In other words, agents who make, modify and follow roads and paths are likely to pick certain features of the environment and topography along the route to remember (Julie Candy personal communication 2004). Or conversely, a road or path may be moved so that it passes features that should not be forgotten. These aspects may take the form of physical landmarks such as mountains used as topographic cues to locate oneself in the environment – what Golledge calls “heading vectors” (2003: 28, 36). Likewise they may take the form of historical or personal events such as marriages, births, areas of danger and beauty. Humans personalise topography – we make it our own by attaching meaning to certain places. We experience it. We convert topography to landscape – a narrative of these experiences.

By moving past these meaningful places, not only is one’s physical location in the topography confirmed, but the act of remembering serves to reaffirm one’s overall place in the world (Tilley 1994: 27). Landscape is a concept that is always embodied. The daily movement of a farmer to his fields, the people he meets along the path and the ‘places’ that are passed are all woven together into his understanding of the world.

Practice and landscape theory as combined within this thesis offer an innovative means of understanding the relationship between human movements and the morphology and route of roads and paths. Through the analysis of communication route data, using GIS as a tool, I suggest how humans moving through the environment both influence, and are influenced by, the material culture of roads and paths. By affecting the morphology of communication routes, landscape itself is changed. Tending practices are daily alterations in the form of roads and paths. They are not necessarily uniform, but instead vary according to individual needs. For example, an individual travelling by donkey may stop and pick sharp stones from the road surface while someone walking along the same road without concerns for the donkey’s hooves would step over the sharp stones. Like the

collecting of branches discussed previously, tending is personalised and is influenced by one's concept of landscape, the method and rhythm of movement through the environment. Combining morphological data from communication routes, land-use information and settlement data, I suggest relationships between road/path formation, maintenance, daily movement and landscape perception.

2.5 The framework for interpretation

This thesis lays the foundation for further research into communication routes by approaching them as material culture. Never before in Mediterranean archaeology have communication routes been studied systematically to address the theoretical approaches discussed in this chapter. Routes of communication, unlike other types of material culture, offer spatial insight into movement and landscape.

The approach followed within this thesis accepts that through the systematic and intensive survey and study of communication routes, it is possible to understand the web of relationships of which roads and paths are a part. Paramount to the analyses that follow is the understanding that roads and paths are not reflections of interaction but instead are embodiments of interaction. The entwined dialectic that exists between actor and route makes this study a unique opportunity to explore the realm of bodily practice and landscape.

It is the overall aim of this thesis to go beyond recording morphological features and tracing routes of communication, to address the concepts of power, resistance, agency, material culture and landscape. The outcome of this amalgamation is an archaeology of communication routes.

3 A Guide to Field Research: Methodological Approaches to the Survey of Communication Routes

Archaeology today is shifting focus from ‘site’ based archaeology to the investigation of broader patterns of human action in and on the landscape. The study of communication routes in the form of roads and paths can contribute to our understanding of past humans, their behaviour and impact on the landscape. Roads and paths, their formation, location and function are essential elements of landscapes. As such, rigorous recording and documentation of roads and paths is a vital part of any project claiming to contribute to the study of landscape archaeology.

All the decisions that take place when setting up and carrying out field survey “materially affect the character of the data acquired by the survey and...the types of archaeological problems they can be used to tackle” (Cherry *et al.* 1991: 13). This chapter therefore has three main aims. First, I illustrate the systematic process of locating and documenting communication routes and their associated features. Second, I appraise the effectiveness of these methods, because communication routes have not previously been studied as material culture. The third and final is to assess the success of solo survey as a technique for locating and documenting communication routes. Until now, the study of communication routes has fallen through the cracks of regional surveys. I hope that this methodology will provide future projects with a starting point for integrating the study of communication routes into their survey designs.

This methodology was originally written up as a field manual, with the foundations for locating and recording communication routes established before arrival in Cyprus. That said, methods were revised and expanded as my field experience grew. Ultimately, their revision solidified and secured my field procedure within a document that could be referred to on a daily basis. Thus, the methods described below are tailor-made for locating and documenting

communication routes through short-term solo survey. This chapter forms the methodological context for the interpretation of survey data in Chapters 4-7.

A preliminary field season took place in the summer of 2001. This one-month period was spent obtaining maps, securing the boundaries of my chosen survey zones and carrying out some preliminary background research at the Cyprus American Archaeological Research Institute (CAARI) in Nicosia. In 2002 and 2003 I spent six months in total in Cyprus carrying out field survey.

3.1 Survey zones

Three survey zones were selected according to topographical and environmental factors including vegetation and land use, while considering the archaeological background and preservation in individual regions (Cherry *et al.* 1991: 14). These survey zones are representative of the range of topography found on the island of Cyprus, and enabled me to investigate the interplay between topography and human interaction (Figure 3.1). Thus, these survey data may be used to understand island-wide patterns of communication. Practical logistical factors such as knowledge of territory and access to informants influenced my choice of survey zones and were therefore important to the success of my field research.

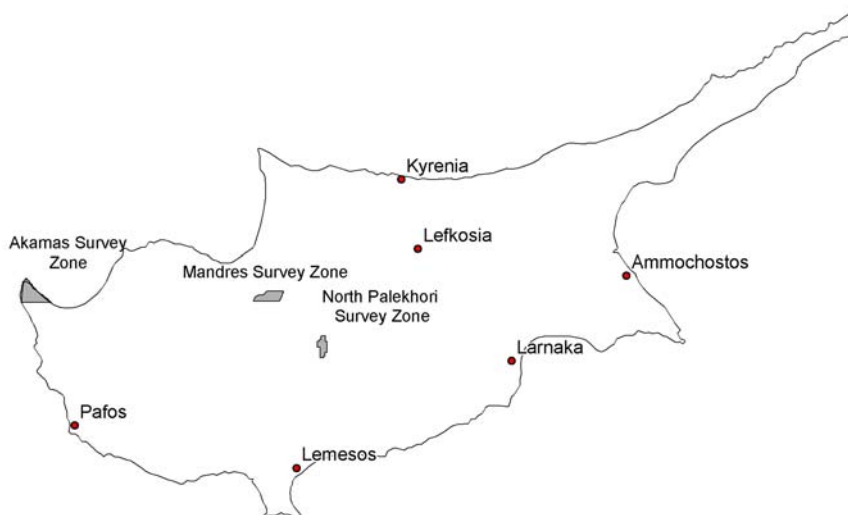


Figure 3.1: Map of Cyprus showing position of the Akamas, North Palekhori and Mandres survey zones discussed within this thesis.

North Palekhori

The North Palekhori Survey Zone is unique (Figure 3.2). As the highest of all survey zones, ranging from 766 to 1126 metres above sea level, the dramatic topography made it necessary to use different methods to locate communication routes in the region. This comparatively small survey zone is composed of privately owned mixed forest where terraces dominate the hillsides.



Figure 3.2. View of path in North Palekhori Survey Zone.

An informant brought the footpaths, abandoned villages and terraces of the Palekhori region to my attention in 2001. The need for including the North Palekhori area in my survey was illuminated by the association between known material culture, topography and dearth of previous archaeological interest in mountainous regions beyond the study of churches. Approximately three weeks was spent gathering data in the North Palekhori Survey Zone.

Mandres Survey Zone

The Mandres Survey Zone is located in the northern foothills of the Troodos Mountains. Geologically, it is the interface between the pillow lavas of the Troodos and the ancient soils of the Mesaoria. Ranging from 230 to 500 metres above sea level, this survey area captures the topographic change between mountain and plain. The Mandres Survey Zone offered the opportunity to locate and explore interaction between varied topographies and land use areas from the

pine dominated Adelphi State Forest in the south, across the cultivated foothills and plains of the Mesaoria to the north (Figure 3.3).



Figure 3.3: View west along transect of Mandres Survey Zone with cereal fields in the distance.

The Mandres Survey area skirts the area of the Troodos Archaeological and Environmental Survey Project (TAESP). Data on settlement, land use and ethnographic information made available through participation in this project gave me a chance to investigate communication routes in a more detailed manner than was feasible through my own solo survey. Data from the TAESP survey project, combined with data on communication routes from the Mandres and North Palekhori Survey zones, creates a more holistic view of archaeology in the North Troodos Mountains. Two months were spent recording communication route data in this survey zone.

The Akamas Peninsula Survey Zone

The Akamas Peninsula is located in the most north westerly portion of the Republic of Cyprus. The Akamas Peninsula Survey Zone has an area of approximately 18 km² and, except for one small privately owned enclave, exists

completely within the Akamas State Forest and Neochorio village territory. Topographically, this survey zone ranges between 0 and 396 metres above sea level (Figure 3.4).

The secluded nature of the peninsula increased the potential for the preservation of communication routes and their associated features. Previous archaeological study in the area completed by the Danish Akamas Project (Fejfer *et al.* 1995), the Department of Antiquities (unpublished File 166/38/4 Blue 108-110; File 166/38 Blue 22, 52-54), and Lorenzo Quilici (1971), coupled with its unique coastal topography, provided a solid context for my survey of its roads and paths. Survey in the Akamas Peninsula Survey Zone took place on two different occasions that together totalled a period of three months.



Figure 3.4: View of Cape Arnauti to the north, Akamas Peninsula Survey Zone.

3.2 Method of discovery

Collecting communication route field data through field survey was essential in order to address my research questions. I chose short-term solo survey as the means through which these data were collected. Previous work on the TAESP (Troodos Archaeological and Environmental Survey Project) survey project gave

me the background methodology, experience and network of contacts with which to approach this fieldwork.

The survey of communication routes is limited by the same elements as any regional survey project. The probability of discovering archaeological remains through survey is limited by factors such as visibility, accessibility, obtrusiveness (Meyer and Knapp 2003: 11; Schiffer *et al.* 1978: 4-9; Terrenato 2000: 60; Wandsnider and Camilli 1992: 177). The terms ‘visibility’, ‘abundance’, ‘accessibility’ and ‘survey intensity’ are taken from Schiffer *et al.* (1978) and concern the limitations of discovering archaeological remains through survey. These terms are especially relevant to this survey of communication routes where survey zones were often isolated and heavily vegetated.

The frequency or abundance of an ‘archaeological phenomenon’ such as a site or artefact is often expressed in terms of density (Schiffer *et al.* 1978: 4; Wandsnider and Camilli 1992: 171). Calculating density of artefacts and sites to produce distribution patterns is a technique used commonly in large-scale survey projects. Density is not a measure used within this survey because communication routes are linear features. The overall length of roads, paths, and routes surveyed, however, may indicate overall intensity of interaction per survey zone.

Accessibility is the amount of effort required to reach all areas within survey zones (Schiffer *et al.* 1978: 8). This factor played a central role in the Mandres Survey Zone, where cereal cultivation made it impossible to complete transect survey in some parts of the plains and foothills. Survey techniques in the steep topography of the North Palekhori Survey Zone also required modification, while the scattered cliffs and unstable slopes on the northeast side of the Akamas Peninsula Survey Zone made it unsafe to survey. The peninsula’s impenetrable maquis influenced ground visibility, and greatly slowed movement.

Visibility is another factor affecting the probability of locating archaeological remains through field survey (Schiffer *et al.* 1978: 7; Wandsnider and Camilli 1992: 171). Visibility within each survey zone varied due to their topographically unique nature. Height and density of vegetation and topographic constraints often

hampered identification of roads and paths. Transect survey accentuated this issue, because it requires following a precise course regardless of vegetation.

In some instances vegetation made identifying communication routes easier. Tracing routes of communication depends in part on recognising the line of the road or path in the vegetation. Linear patterns are visible when vegetation skirts the sides of roads and paths, while the vegetation on the path surface is of a different type and density. When viewed from a distance this break in slope appears as a line or linear feature in the landscape.

Such features are often best identified in mountainous areas. In the North Palekhorri Survey Zone and some parts of the Mandres Survey Zone, for example, elevation made it possible to view large segments of landscape from a distance. Recognising these linear features is easiest in the spring when the contrast between vegetation on the surface of the communication route and that of the surrounding landscape is greatest.

Transect survey was used in the Mandres Survey Zone and the Akamas Peninsula Survey Zone to ensure that survey intensity and coverage was maintained regardless of variation in accessibility, abundance and visibility of communication routes and their associated features. Choosing survey intensity was, like on any survey project, based on a combination of research goals, survey environment and budget that in turn is directly related to the amount of labour required to carry out the fieldwork successfully (Cherry *et al.* 1991: 16, 18; Meyer and Knapp 2003: 25; Schiffer *et al.* 1978: 13). Full coverage survey may help to produce more detailed spatial analyses of site distributions but is rarely feasible (Meyer and Knapp 2003: 11). In most cases field projects choose to sample survey zones using a variety of techniques to maximise the probability of locating material culture. The more intensive the survey, the less influence factors such as visibility, accessibility and abundance have on the overall survey results.

The survey of communication routes was targeted directly towards locating roads, paths and their associated material culture. The overall intensity used to locate communication route data influenced the picture of interaction throughout the

survey zones. I employed a sampling strategy to locate a meaningful fraction of those communication routes existing in the chosen survey zones (Terrenato 2000: 60). To maximise survey zone coverage and the likelihood of locating communication routes, I used both systematic and purposive sampling techniques.

The first stage of survey involved locating roads and paths by systematic transects and purposive survey reconnaissance. Once located, these roads and paths were surveyed intensively through block survey, recording material remains on the surface and material culture found in association. Although these survey methods have different aims, when used together they make a dataset representative of communication routes throughout the Cypriot landscape.

3.2.1 Systematic: Transect Unit and Road Unit survey

The overall aim of transect survey was to provide a control for purposive survey. Transects were defined by the Universal Transverse Mercator (UTM) grid. Although I chose either the northing or easting line independently for each survey zone, the northing line was the most convenient in both the Akamas Peninsula and the Mandres Survey Zones. In the Akamas Peninsula Survey Zone eight transects were laid out along the northing line, cross-cutting the peninsula and its topographical contours, while the four transects in the Mandres mostly paralleled topographical contour lines. Due to severe topographic constraints transect survey was not feasible in the North Palekhori Survey Zone.

Within the chosen survey zones, transect lines were laid out every 500 metres along the northing or easting line. I walked each transect line while viewing to a maximum of 20 metres on either side, so that overall 40 metres were surveyed. It should be noted that the total area possible to survey along a given transect was directly proportional to the degree of visibility in the area. In places with dense vegetation such as maquis or forest, the surveyable area was limited to that which can be seen at any one time. In these circumstances the 40-metre survey strip was the maximum area viewed while the minimum was 20 metres. Transects were divided into 100-metre segments called Transect Units. These units were devised to aid in the recording process.

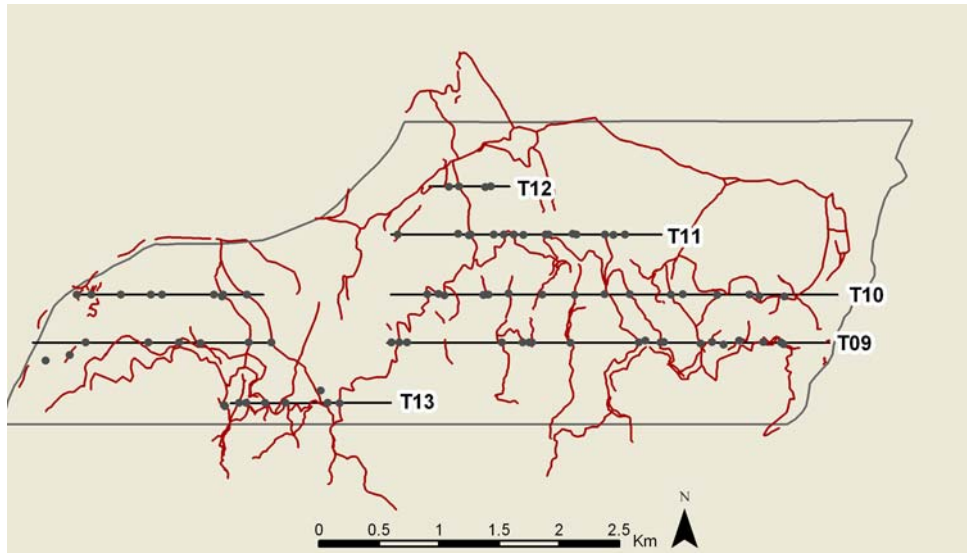


Figure 3.5: Mandres Survey Zone showing transects and grey dots where roads and paths cross transects lines.

In total, eight transects in the Akamas Peninsula Survey Zone produced a linear coverage of 14.6 km viewing to a distance of 40 metres. The five transects of the Mandres Survey Zone covered a distance of 15.2 km viewing to a distance of 40 metres (Figure 3.6).

Block survey was the second sampling stage. Communication routes only need to be crossed once by transects in order to be sampled again by block survey (Figure 3.5). Those communication routes located through transect survey were subdivided into smaller segments called block survey units. Block survey involves the systematic recording of road and path morphology by separating routes into discrete units (Road Units) defined by road structure and morphological characteristics. Dividing routes into these discrete units based on morphological characteristics and the environmental conditions of the road or path surface ensured the independent analyses of road or path segments throughout the survey zones. The material culture of Road Units was also documented rigorously, and material culture associated with the unit was described and photographed to gain further understanding in the chronology and function of the route. I chose to use the oft-used term ‘Place of Special Interest’ (POSI) to refer to distinct material remains of limited horizontal extent found in association with roads and paths (Cherry *et al.* 1991; Meyer and Knapp 2003: 28). In many cases such POSIs

consisted of goat folds, pottery scatters, churches, tombs, cairns and concentrations of terracing.

3.2.2 Purposive: reconnaissance survey

Ethnographic sources and general reconnaissance were necessary to locate communication routes in the North Palekhori Survey Zone where the topography was too steep for transect survey. Often reconnaissance survey involved following ridgelines and finding paths shown on cadastral plans. Once located via purposive techniques, roads and paths were systematically block surveyed. Thus, in contrast to the other survey zones, in North Palekhori block survey was the primary unit of recording communication routes.

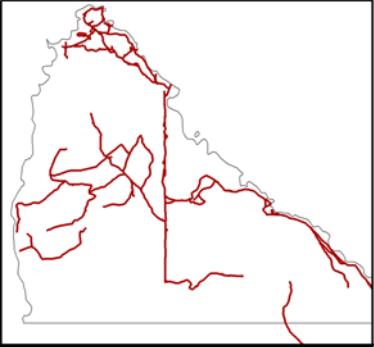
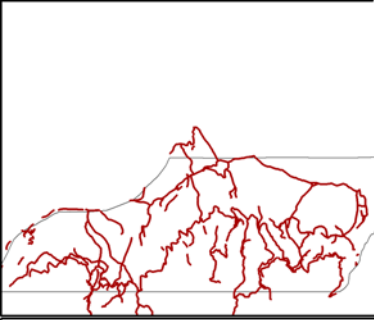
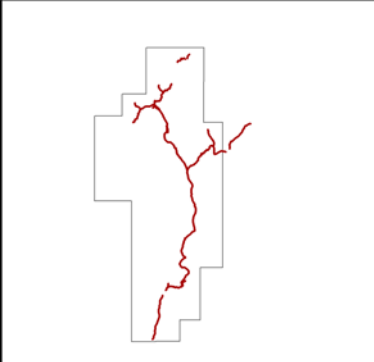
Survey Zones	Size	RU Length	TU Length
	Akamas 11.2km ²	46.2km	14.6 km
	Mandres 14.4 km ²	60km	15.2 km
	Palekhori 9.14 km ²	9km	N/A

Figure 3.6: Schematic map showing total Road Unit and Transect Unit distances for the Akamas Peninsula, Mandres and North Palekhori Survey Zones.

3.2.3 Tools for locating communication routes

Locating and recording communication routes required a variety of specialised equipment including:

Field equipment

- GPS
- Digital Camera
- Notebooks
- Writing utensils
- First Aid Kit

- Water bottles
- Compass
- Greek/English dictionary and phrase book
- Clipboard with forms
- Photocopy of maps
- Handbook of plants
- Handbook of geomorphology



Office equipment

- Printer
- Laptop computer
- CD burner
- ArcGIS software

Maps and GIS were two of the most essential tools used for the discovery and analyses of road survey data. Modern topographical maps and historical maps, cadastral plans and aerial photographs were vital navigation tools for field survey, while 1:25,000 topographical maps and three 1:50,000 topographical maps were incorporated into a GIS system as base maps. These geo-referenced maps were used for navigational purposes. The following maps were consulted during this survey:

Historical map Kitchener 1885 (Department of Lands and Surveys)	
1:50,000	Topographical maps (Department of Lands and Surveys 1988, 1999)
1:31,680	Two inch to a mile topographical map (Department of Lands and Surveys 1925)
1:8,000/6,000	Aerial photographs (Department of Lands and Surveys 1993)
1:5,000	Topographical maps (Department of Lands and Surveys 1976)
1:5,000	Cadastral plans (Department of Lands and Surveys 1924, 1925)
1:1,250	Village plans (Department of Lands and Surveys 1924, 1925)

ArcGIS is a powerful geographical information system. The ease with which georeferencing occurs within this programme facilitates the import and ‘tie down’ of different types of maps from a variety of time periods, including historical maps and cadastral plans. These tools assisted both in the analyses and display of Road Unit data. ArcGIS and GPS technology linked to database tables offered the most secure and complete means of collecting, integrating, and displaying data from this survey.

3.3 Recording methods

Interpreting data is impossible unless it is properly documented. The high standards of collecting and recording set out by large survey projects such as the Sydney Cyprus Survey Project (Given and Knapp 2003) and the Troodos Archaeological and Environmental Survey Project (<http://www.taesp.arts.gla.ac.uk/>) should be followed by all survey projects regardless of size and personnel. It is the responsibility of each researcher to ensure that data collection, recording and analyses are consistent (Mattingly 2000: 13). The methods used during this survey to locate, record and interpret data are documented and explained in order to protect their integrity. As part of this procedure my data will be submitted to the Archaeological Data Service (<http://ads.ahds.ac.uk>), an organisation that seeks to preserve digital data for future use by other archaeologists as well as the public.

The levels of discovery and recording used here are listed below. This structure has been adapted from the TAESP project with permission.

Transect Survey

- TUF (Transect Unit Form)
 - Photograph Record Form

Road Survey

- RUF (Road Unit Form)
- RUF Continuation sheet
 - POSI Form
 - Photograph Record Form

The most effective way to explain my documentation procedures is by discussing actual examples of recording forms. These forms structured the manner in which information was collected and in turn affected interpretations.

Form designs used through this survey are comparable to those of many large scale regional survey projects in that they deliberately allow for the entry of a wide array of information about material culture and environment while keeping a consistent format (Cherry *et al.* 1991; Coleman *et al.* 2003; Mattingly 2000: 10). Green paper was used for all field forms. Experimentation during the preliminary fieldwork season and consultation with other fieldworkers (Luke Sollars personal communication, 2003) proved that eyestrain and glare were lessened when green forms were used rather than white paper.

Transect Units (TU)

Transect survey was the first stage of systematic survey (Section 3.2.1) and Transect Units were the first level of recording. The purpose of Transect Units and the TU Form was to record the presence of roads and paths systematically, and at the same time give an overall picture of the landscape. The Transect Unit Form acts as a catchall measure for future survey, because it enables documentation of features or material remains located along transects that initially may not seem to be associated with communication routes.

Transect (T01)	Surv Region	TU No (TU00)	Easting	Northing	Elev. (m)	Description	Rec. Date	Ent. Date	Aud. Date
T02	Akamas	TU001	435723	3884040	8	stone cut track at 435730/3884040 Shipwreck at 435775/3884040	25/04/02	27/01/02	
T02	Akamas	TU002	435623	3884040	10	small clearing 435673/3884040, military activity.	26/04/02		
T02	Akamas	TU003	435523	3884040	13	lime stone circle 76.5cm diam. 122cm deep - poss. natural	26/04/02		
T02	Akamas	TU004	435423	3884040	18	Road at 435474/3884038, amphora photo.			
T02	Akamas	TU005	435324	3884040	22	Road at 435313/3884040, terraces			
T02	Akamas	TU006	435222	3884040	30	Path at 435262/3884040, goat trail 435192/3884040			
T02	Akamas	TU007	435122	3884040	27	Goat trail at 435124/3884040, many goat trails			
T02	Akamas	TU008	435021	3884040	29				
T02	Akamas	TU009	434922	3884040	41	Series of clearing running east-west, terraces. 434953/3884040			

Figure 3.7: Transect Unit (TU) form showing descriptions of transect T02 and its associated Transect Units TU001-TU009.

Transects were divided into arbitrary 100-metre units and data located within these units were entered on a standardised Transect Unit Form (Figure 3.7). Each transect was allocated a number unique to that survey zone, with each 100-metre long Transect Unit given an additional number. Thus, Transect Units have a full number sequence that looks like this: T02TU001 (Transect T02, Transect Unit TU001). Elevation readings taken from the centre of each Transect Unit provide a general topographical context. In the description field the position of roads and paths or any material culture of interest located within the Transect Unit is recorded. This field forms the basis for later block surveys.

Road Units (RU)

Roads and path data were recorded on a specialised Road Unit (RUF) Form (Figure 3.8). Unlike the simple style of the Transect Unit Form, the Road Unit Form has a wide range of fields separated into four main sections.

ROAD UNIT FORM **RU**

Road Unit No: RU_0248
 Transect No: T_06 Transect Unit No: TU / T.A.S.P. POSI No: TP /

Location
 Survey Region: AKAMAS Village: NEDKHOEIO Locality: FONTANA Amador
 Start Easting: 3881610 Northing: 434789 Elevation: 93
 End Easting: 3881432 Northing: 434869 Elevation: 94
 Waypoint: Start: 658 End: 670

Environment
 Slope: 5 degrees Aspect: SOUTH Sediment Depth: / millimetres
 Vegetation: TUMBO + BATHA
 Surface Char: /
 Topography: COASTAL PLAIN WITH SLIGHT SLOPE

Road Certain Morphology: AP FP
 Construction: Paved - Tarmac - Cobble
 Unpaved: Gravel Bedrock
 Surface Stability: UNSTABLE
 Road Element: RD Structural Features: BEDROCK CUT, CAVERN
 Length: / m Width: 3000 mm Depth: 600 mm
 Slope: 2 degrees Aspect: SE
 Vegetation: /

Material Culture		
Quantity	Period	Description
Pottery	<u>SOME</u>	<u>?</u>
Tile		<u>3 BODY SUELO - OUNGE/RED - LG THICK, 7mm thick; BEAN/RED 4mm thick</u>
Chipped Stone		<u>POSS. FRAGMENT OF BASE.</u>
Ground Stone		
Slag		

Narrative Description Sketch on back
 LONGER RU STARTS ENKICOW. VERY FLAT + RD WIDE (5m) BEDROCK CUT ON UPSLOPE SIDE (EAST), FOR 25m. -
 ROAD SURFACE 30-40cm difference in elevation from local to east (the road associated with bedrock cut portion) & POSS older route? converges with path.

Source of Information: _____
 References: MATHESEN 1995

Recorded By: ESG Entered By: ESG Audit By: ESG
 Date: 15/10/2002 Date: 15/10/2002 Date: 01/09/2003

Road Unit Number and location

Environment

Road morphology and material culture

Narrative description

Figure 3.8: Schematic Road Unit form showing the four main parts of the form for entry during block survey.

The first section on the form (Figure 3.9) refers to the Road Unit number and its location. Like the transect number, the Road Unit numbering system is unique and cumulative throughout all survey zones: it allows for units running up to RU9999. If a Road Unit was associated with a transect, Transect Unit, or ‘Place of Special Interest,’ then their details were recorded on the form as well. The exact easting and northing of the start and end of the Road Unit was recorded as a ‘waypoint’ using a GPS. The village and locality name (as shown on cadastral plans) was not recorded in the field but back at ‘home base’, where maps were more readily available.

ROAD UNIT FORM			RU
Road Unit No: <u>RU 0248</u>	Transect No: <u>T 06</u>	Transect Unit No: <u>TU /</u>	TAESP POSI No: <u>TP /</u>
Location			
Survey Region: <u>AKAMAS</u>	Village: <u>NEOKHOREIO</u>	Locality: <u>FONTANA AKADOS</u>	
Start Easting: <u>3881610</u>	Northing: <u>434789</u>	Elevation: <u>93</u>	
End Easting: <u>3881432</u>	Northing: <u>434869</u>	Elevation: <u>94</u>	
Waypoint	Start: <u>658</u>	End: <u>670</u>	

Figure 3.9: Road Unit location and description.

The second section of the form (Figure 3.10) describes the environment surrounding the Road Unit. This information is essential for placing the Road Unit in its environmental context.

Environment			
Slope: <u>5</u> degrees	Aspect: <u>SOUTH</u>	Sediment Depth: <u>/</u> milli/metres	
Vegetation: <u>THYME + BATHA</u>			
Surface Char: <u>/</u>			
Topography: <u>COASTAL PLAIN WITH SLIGHT SLOPE</u>			

Figure 3.10: Environment surrounding the Road Unit for putting RU into environmental context.

The slope of the environment surrounding the RU was measured in degrees using a clinometer, recording only the dominant aspect. Prevailing vegetation was noted along with a general description of the topography found in the immediate vicinity. Vegetation classifications followed the list of land use categories produced by SCSP's and TAESP's geobotanist, Neil Urwin, and consists of Batha, Garigue, Maquis, Forest and Open Forest.

Detailed documentation of the Road Unit morphology and material culture is listed in this third section of the RU Form (Figure 3.11). The length, width and depth of Road Units were recorded in millimetres where applicable. In many instances final RU lengths were filled in after digitisation. The slope and dominant aspect of the Road Unit were registered using a compass. The designation of AP (animal path) FP (foot path) and RD (road) is given at this stage. As discussed in Chapter 1, the distinction between these categories is based on a combination of width measurements and surface character. Any lack of certainty concerning this designation was marked on the form.

Road ~~Certain~~ Uncertain Morphology: AP FP Rd

Construction: Paved - Tarmac - Cobble
Unpaved - Gravel - Dirt - Bedrock

Surface Stability: UNSTABLE

Road Element: RD Structural Features: BEDROCK CUT, CAIRN

Length: ___ m Width: 3000 mm Depth: 600 mm

Slope: 2 degrees Aspect: SE

Vegetation: /

Material Culture

	Quantity	Period	Description
Pottery	SOME	?	3 BODY SUELD - ORANGE/RED - LG TEMPER, 7mm thick; BROWN/RED 4mm thick POSS. FRAGMENT OF BASE.
Tile			
Chipped Stone			
Ground Stone			
Slag			

Figure 3.11: Third part of the Road Unit Form recording morphology and material culture.

The construction of Road Units was documented by filling in whether or not the surface was paved, cobbled or unpaved dirt, gravel, etc. Indicating the stability of the RU surface was important both for interpreting archaeological material found on its surface and for understanding Road Unit use. The terms used for surface stability were taken from the Sydney Cyprus Survey Project (SCSP) geomorphological handbook produced by Lisa Wells and Jay Noller (n.d.):

- Stable A Horizon intact
Soil A horizon is still intact, although it may be reduced in thickness
- Unstable A Horizon removed from >30% area Soil
Soil A horizon is significantly reduced in thickness and eroded areas account for more than 30% of the surface area.
- Erode A Horizon gone and sub-A horizon exposed
Soil A horizon is fully eroded away and sub-soil horizons or layers (bedrock) are exposed at surface.
- Strip All surface soil and sediment is stripped away
All soil horizons and sediment are removed to expose a bedrock surface over more than 90% of the area.

Road elements define a Road Unit. These elements distinguish morphological differences between roads, paths, junctions, bridges etc. Structural features on the other hand are special features found along the unit such as bedrock cutting or the presence of a cairn as seen in RU0248 (Figure 3.11). Several such features may be recorded within a Road Unit. Descriptions of RU surface vegetation were derived from a list of common vegetation types such as cistus, grass, mosphilo. They

provide more detailed information concerning the use and abandonment of the Road Unit.

Material culture forms a separate field on the RU form and is divided into five different material culture classes: pottery, tile, chipped stone, ground stone and slag. Any architectural remains found in association with a RU automatically become 'Places of Special Interest' and therefore are entered on a separate form. The quantity of each type of material culture found in the Road Unit was documented along with a tentative date and description. Photographs were always taken to ensure that specialists could more securely date the material and determine its function.

The Photograph Record Form documents a general summary of the material culture type, the RU number and direction from which the photo was taken (Figure 3.12). The computer file location and file structure is documented on the form for future reference.

C:/CYPRUS/FIELD RESEARCH/PHOTO/MANDRES

Photographic Record Form

Frame	S/R	Trans No	Unit / POSI	Description	Taken From	Date Taken	File loc	Disk No	Record Date	Audit Date
DSCN0629	map	T	RU0492	PATH VIEW	N	17/06/03			"	01/09/2003
0630		T	0492	FOREST TRACKING + PATH	NW	17/06/03				
0631		T	/	PASS. COMMUNIC. ROUTE (RU 0492)	NE					
0632		T	/	LARGE STRANGE SKULL - SHEEP?	S					
0633		T	0495	VIEW OF ROAD	N					
0634		T	RU0499	HANDLE FRAGMENT + BORN SUELD WITH DEC	N	18/06/03			18/06/03	✓

Figure 3.12: Photographic Record Form showing entry DSCN0629-DSCN0634.

The final section of the Road Unit form consists of a narrative description with a sketch of the unit on the back of the form (Figure 3.13).

Narrative Description Sketch on back

LONGER RU STARTS ENNILON. VERY FLAT + RD WIDE (5m) BEDROCK CUT ON UPSLOPE SIDE (EAST), FOR 25 m. -

ROAD SURFACE 30-40m difference in elevation from road to east (the road associated with bedrock cut portion) & PASS older route? Corresponds with path.

Source of Information: _____

References MATTHESEN 1995

Recorded By: ESG Entered By: ESG Audit By: ESG
 Date: 15/10/2002 Date: 15/10/2002 Date: 01/09/2003

Figure 3.13: Fourth section of the Road Unit Form showing narrative description recorded on 15/10/2002.

Narrative description allows researchers to synthesise and provide context for the information presented in the previous portions of the form. The narrative description of RU0248, for instance, relates many aspects about the Road Unit that never would have been entered using the other fields no matter how complicated the form became (Figure 3.13). It appears from the above description that this road is bedrock cut on the upslope side, while the eastern side is buried beneath the current road surface. When information from these two Road Units is merged a full impression of the overall route is created. The different heights and vegetation covers supported the idea that the overall route is actually composed of two (chronologically) different roads. It should be stressed that it is only by recording these units separately and in detail, that this hypothesis became apparent.

‘Places of Special Interest’ (POSI)

The term ‘Place of Special Interest’ has been explained previously as cultural material of a limited horizontal extent associated with a Road Unit. Like the RU form, POSI forms are separated into four sections (Figure 3.14).

POSI Recording Form **POSI**

POSI No: P0018 Survey Region: PALEKHORI Transect No: ✓ Unit No: ✓
 Village: PALEKHORI Locality: PALEKHORI Easting: 509453 Northing: 3866013
 Elevation: 999 (m) From: GPS

Summary: BEDROCK CUT PATH WITH POTTERY

Topography: SPUR / RIDGE - BEDROCK OUTCROP
 Vegetation: FOREST
 Access: FOOT PATH (DROMOS TOM APPI)

Environmental Description
LOCATED ON SPUR OVERLOOKING AGRICULTURAL LAND (TERRACES)

Material Culture

Type	Quantity	Period	Description
Pottery	<u>SOME</u>	<u>OT-MOD</u>	<u>ONE COMPLETE POT 30cm across 5mm THICK -</u>
Tile			
Chpd. St			
Grnd. St			
Slag			
Architect			

Visibility: 90 %

POSI Description
POSI CONSISTS OF PATH RUNNING ALONG SPUR. BEDROCK IS CUT IN TWO PLACES AND ONE POT LOCATED AT PATH EDGE. NOTE THAT BEDROCK IS CARVED / CUT SO AS TO BUILD UP THE OUTER EDGE OF THE PATH. - SAME TECHNIQUE AS WITH TERRACING. PLOTS TAKEN OF POTTERY + PATH.

Condition: GOOD

Sketch ✓
SEE BACK OF FORM.

Recorded Date: 21 APRIL 2003 Entered Date: 22 APRIL 2003 Audit Date: 01/09/2003.

Figure 3.14: POSI Form showing location, environment, material culture and POSI description fields in the North Palekhori Survey Zone.

The first section of the POSI form includes a cumulative POSI number (P001) that again allows for up to 999 'Places of Special Interest' to be discovered. The usual information regarding the survey zone number, transect number, Road Unit

number, village, locality, easting, northing and elevation is included in this first section.

The second and third sections of the form describe the general environment, topography, vegetation, transportation access and material culture. The designations used are identical to those described previously for the RU form with the addition of transportation access and visibility of the POSI. The former field gave the opportunity to record details about travelling to and from the site to ease future revisits. POSI visibility was documented in percentages and is most relevant for architectural remains when structures may be partially eroded or otherwise disturbed. A brief description and a sketch complete the fourth section of the form.

Notebooks

No matter how successful forms are at integrating description into discrete searchable fields, narrative description still remains one of the most essential parts of the recording process. The quantitative forms described above are supplemented with qualitative data such as ethnographic information obtained through interviews and descriptions and insights recorded in the field. Notebook entries formed the narrative backdrop for survey; by documenting, commenting and reflecting on the decision-making processes notebook entries gave data a social and cultural context.

Database

The Transect Unit Form (TUF), the Road Unit Form (RUF), the Photographic Record Form and the Places of Special Interest (POSI) Form are all incorporated into a *Microsoft Access* Database. Their construction took place in tandem to ensure that fields from survey forms matched those of the database, which in turn facilitated data entry and ensured comprehensive data recording. I followed the methodology of most current survey projects which complete data entry from forms at the same time as fieldwork to ensure that mistakes made in the field are quickly corrected (Mattingly 2000: 10).

This database both facilitated the recording and preservation of data and enabled analysis of field data. Within the database, relationships have been established between individual tables to enable searching between forms and fields. To make sure that the database was constructed correctly and that inter-tabular relationships were made accurately I sought assistance from the TAESP database manager, Luke Sollars.

The GIS programme *ArcGIS* is a tool for navigating while it also functions as a means of documenting and analysing communication route data. Data from a handheld GPS (Global Positioning System) were downloaded into the GIS system daily. Recorded data were entered into the database, which was subsequently linked to *ArcGIS*. Queries formed within the database could be projected spatially through the GIS. For example, a query constructed from the Road Unit data table in my database could be used to make categories of Road Unit slope. If imported into *ArcGIS* these categories of Road Unit slope could be assigned different colours so that they could be pictorially represented on a topographic map.

Although these various tools and techniques for locating, recording and analysing data have been described independently, they are all integrated in application. It should be remembered that the data interpreted in the following chapters are based on field methods designed especially for the location and documentation of communication routes.

3.4 Interpretation and survey assessment

Clarity and candid assessment of survey methodology is an important aspect of regional survey (Mattingly 2000: 13). The methods outlined above effectively address those research aims laid out in Chapter 1. It is essential to remember that the purpose of this survey was to locate communication routes. These linear data are not comparable to point data collected by survey projects that investigate settlement patterns and site densities through pottery scatters and architectural remains. The survey of communication routes cannot be quantified in the same manner and assessing the validity of this survey through comparison with survey projects that focus on point data is fruitless (cf. Cherry *et al.* 1991;

Given_2004a:13-14). I therefore focus on a qualitative assessment of my survey methods and data by addressing those advantages and disadvantages pertaining to transect survey, Road Unit survey, and material culture analyses as well as the logistical difficulties involved in using solo survey techniques for locating communication routes.

The primary aim of transect survey as defined here is to locate communication routes, but transect survey revealed an unexpected bonus. Each survey zone is different and therefore the morphology of roads and paths vary. Transect survey made it possible to gain enough familiarity with the landscape so that the identification of communication routes was easier.

Settlement and land use data are important in the interpretation of communication routes. These data were obtained mainly on the level of transect survey where it is possible to record distributions of material culture, like pottery and chipped stone, across survey areas to establish a general chronology of the landscape and communication routes within that landscape. Transect survey was not always the most appropriate way to survey roads and paths. The steep mountain slopes of the North Palekhori Survey Zone made transect survey impossible. While transects in the Mandres Survey Zone are represented by straight lines on maps, in many cases where mountain slopes were steep it was necessary to veer off them for safety. Similarly, dense maquis in the Akamas Peninsula Survey Zone made manoeuvring along straight transect lines impossible. Instead, transect lines were followed as closely as possible weaving through the maquis looking for material culture in those areas where the ground surface was visible. Mee and Forbes (1997: 33) encountered similar difficulties while surveying in the dense maquis in Methana Greece: “if passage could be forced through the bushes, field walkers preferred to focus their attention on minimising damage to eyes and limbs”.

Block survey was a particularly useful way of investigating the detailed materiality of communication routes. Separating roads and paths into units based on morphological differences highlighted the variability of the individual communication routes. In the previous chapter I agreed with Dobres (2000: 127) that people and the material world shape each other through interaction. Only

through Road Units was it possible to record the morphology of communication routes in enough detail to be able to address these views. Likewise, by separating roads and paths into segments it was possible to develop an understanding of communication patterns through space. Road Unit divisions were useful for the analyses of morphological road segments such as loops, junctions and intersections. These Road Units made it possible to compare intersections systematically throughout all survey zones, to assess whether their form was a response to topographical constraints, settlement activity, reactions to landscape, changing social and cultural priorities and/or changing social interaction.

My survey permit did not allow material culture to be collected. Lithics and pottery found in association with communication routes were photographed and described; when necessary the photos were passed to a specialist for dating purposes. In many instances photographs of the material culture were not sufficient to date lithics or pottery. Had I been able to collect material, heavily worn pottery could have been dated more securely through fabric analyses.

The resolution of pottery dating within this thesis is not fine enough to address the comparative differences between roads and path age by material culture alone. Instead morphology, road features, structural elements, in addition to 'Places of Special Interest,' land use and settlement data are combined to approximate the ages of roads and paths. In some cases pottery and chipped stone have been exposed on the road surface by modern traffic. The Road Unit surface is not a primary depositional context because of its unstable nature and constant modification. As a general rule, the material culture found on road surfaces provides information about the landscape and settlement pattern rather than the age of the road surface itself.

Logistical challenges involved in carrying out field survey can be divided into field and domestic logistics. Travel and transportation were the most challenging elements of this survey project. Obtaining a 4-wheeled drive vehicle was not financially feasible, so travel to remote survey zones where roads were unstable required transport by foot, mountain bike or, on the washed-out roads of the Akamas Peninsula, catching rides from the goat herder at Fontana Amorosa. In

most cases days in the field started with long walks before the actual surveying took place. In the Akamas Peninsula Survey Zone almost half of the time spent in the field was dedicated to travelling to and from the survey zone.

The very nature of Transect and Road Unit survey requires extensive movement across the landscape. Retracing steps cannot be avoided in solo survey where transportation remains stationary throughout the day. In the North Palekhori Survey Zone, for example, it took up to three hours to retrace previously block surveyed paths before getting to the position of a new Road Unit. Health and safety was a serious concern when completing this solo survey. I experienced fatigue-based minor injuries while travelling to, from, and in survey zones. Paramount health and safety concerns when working alone are: fatigue, heatstroke, sunstroke and dehydration.

Often my knowledge of Greek and the Cypriot dialect were not sufficient to ask those questions relevant to my research. Most of the time, it was possible to find someone able to communicate on my behalf in all three survey zones. Obviously, the broad knowledge base of a large field survey team would have made it possible to approach survey in a different way. Greek-speaking lithic and pottery specialists working alongside my road and path survey would have allowed more comprehensive collection, dating and analyses of communication routes in all survey zones. Solo survey, however, had its advantages. The independence and flexibility of surveying alone made for a focused and intensive project. Unaccompanied survey had the added advantage of keeping the costs of equipment such as batteries, stationary, photocopied forms and food relatively low, while being a single female working alone made it possible to integrate more easily into community settings. Villagers knew me as an archaeologist and often invited me on village outings, providing me with local information on anything from store hours to the location of abandoned villages and old paths. Finally, the knowledge that the data from my solo survey were collected uniformly throughout all survey zones makes their interpretation more secure.

3.5 Conclusion

The quality of survey data, whether gathered alone or with a group of specialists, is dependent on developing a comprehensive survey methodology and rigorously documenting these methods. Although the methods described within this chapter were designed for solo survey in Cyprus, they are equally applicable to investigating communication routes in any environment. The tools, resources and procedures of collecting, recording and analysing data are essential to its interpretation. The chapters to follow draw upon this methodological framework to present and interpret Road Unit data. Logistical complications have played a significant role in the collection of these data. I have learned through the fieldwork process that survey archaeology often is as much about the logistics of getting permits, meeting officials, negotiating accommodation in remote places and calming rashes as it is about collecting data.

4 North Palekhori: Interaction in a High Elevation Landscape

The North Palekhori Survey Zone is the only area where data comes solely from the survey of paths. These data highlight the entwined nature of communication routes, topography and land use. Themes within this survey zone emphasise the link between path morphology and the individuals who constructed, used and maintained them. Research questions relevant to the Palekhori Survey Zone include:

- Are communication routes in high elevation regions different from those in other survey zones?
- Is there a relationship between topographic constraints, the morphology of paths and the location of communication routes?
- Were the paths in Palekhori the result of one construction event or many?
- What role did the paths in Palekhori play in the daily actions of individuals? How did this affect the morphology of the path?
- Does the material culture of the paths and their associated features say anything about how people moved along them?
- What relationship exists between paths and how the surrounding land was used?

This chapter highlights the importance of context to the interpretation of survey zone data. The methodology used within this survey zone, the history of the Palekhori area, and the region's environment and geology are integral to the interpretation of interaction. As little pottery was located within this survey zone a chronological approach to data is avoided in favour of separating and interpreting data by topographic location. Interaction and communication are discussed with reference to settlements in the area, land use and potential stopping places.

The North Palekhori Survey Zone is located in the Pitsilia region of the Troodos mountain range. The survey zone runs south of Ayios Epiphanios to the village of Palekhori, and ranges from 766 to 1126 metres above sea level (Figure 4.1).

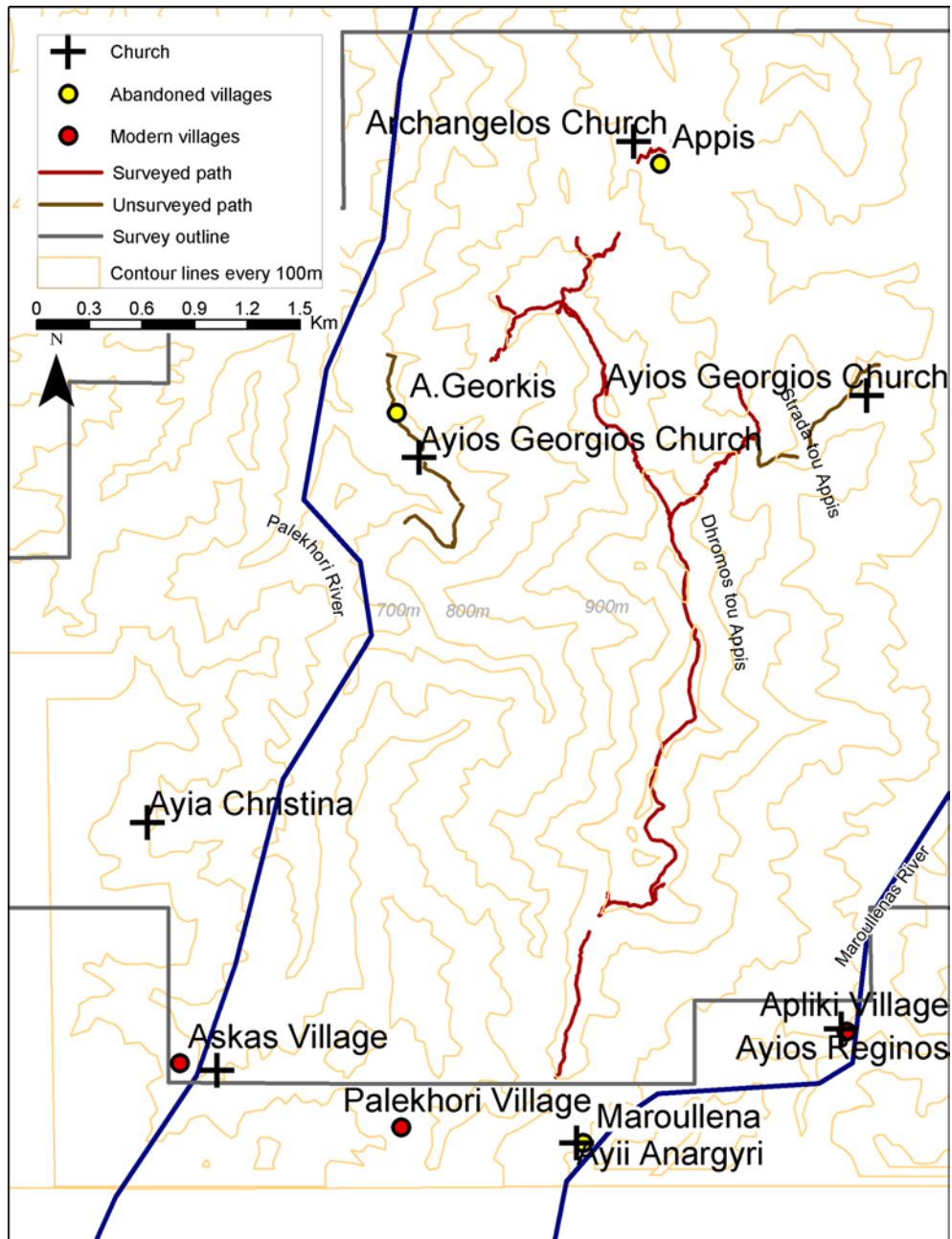


Figure 4.1: Map of North Palekhori Survey Zone showing villages, churches and paths mentioned in this chapter.

The methods used to locate and document communication routes within the North Palekhori Survey Zone provide the foundations for interpreting these data. Systematic sampling by transect was not possible in this survey zone, because the hill slope ranged between 10 and 20 percent (see Chapter 3.1). Instead, the most efficient method of locating communication routes in this region was by combining general survey reconnaissance with information from ethnographic informants. Once located, paths were further explored in order to find lesser-

known ones. The majority of paths in the North Palekhori Survey Zone were systematically block surveyed as Road Units. Reconnaissance and block survey started near the abandoned settlement of Appis and its associated Archangelos Church and continued southward to the village of Palekhori. In total 67 Road Units, ranging from RU0361 to RU0428, were block surveyed. Many units were part of what is locally known as *Dhromos tou Appis* – the road of Appis. The path known as *Strada tou Appis* – or street of Appis – was found through reconnaissance survey, completed during a return one-day visit to the survey zone. Similarly, the path associated with Ayios Giorkis was investigated through reconnaissance survey and was not included in block survey. Due to time constraints, these two paths were not block surveyed. Instead, GPS waypoints were recorded so that the spatial relationship of the paths to *Dhromos tou Appis* could be investigated.

4.1 Landscape history

Evidence for pre-medieval occupation of the Palekhori region is scarce. Until recently, study in the area has focused primarily on sixteenth and seventeenth century churches. The systematic survey of the foothills and plains to the north of the North Palekhori Survey Zone by the Sydney Cyprus Survey Project (SCSP) provides evidence that the nearby landscape was occupied from the Bronze Age to the late Roman period and from the Medieval through to the Modern period (Given and Knapp (eds.) 1999; Given and Knapp 2003).

From general reconnaissance and information from informants living in the area it is evident that there has been occupation of the Maroullena and Palekhori River Valleys from at least the Roman period. The North Palekhori Survey zone provides tentative evidence for pre-medieval occupation of the area. One stemmed transport amphora toe dated from the Classical to the Hellenistic period was located to the west of the North Palekhori Survey Zone in the abandoned village of Ayios Giorkis. Amateur archaeologists found fragments of pottery dated to the Roman period in the Maroullena River Valley in the fields surrounding the abandoned village of Ayios Nikolaos. I am certain that the systematic archaeological survey of the Maroullena and Palekhori river valleys would locate

additional settlement evidence from this period and thus lead to quite a different view of settlement in inland mountainous regions.

There is no occupational evidence from the Byzantine period in the survey zone beyond a tentatively dated 11th century tile from the Church of St. Luke in Palekchori (Jeffery 1918: 28). This pattern of occupation is similar to other areas of Cyprus where evidence for the Byzantine period comes mainly from churches. SCSP similarly found no pottery dating from between the seventh and tenth centuries, and only limited quantities dating to the period prior to the Lusignan or Frankish periods (Given and Gregory 2003: 284). Historians like Grivaud (2002: 28) believe the village of Palekchori was first settled during the period of ‘invasion and piracy’ at the end of the Roman period when historians propose that people moved inland to the mountains to avoid the Arab raids along the coast (Christodoulou 1959: 62-63; Drury 1972: 166-167; Given 2000: 221). During the late Byzantine period many settlements and monasteries were founded in the Troodos Mountains (Karouzis 1977: 24).

The etymology of the word ‘Palekchori’ and associated references to the village in historical documents suggest that the village existed prior to 1237 when the village is first mentioned in deeds as ‘Palekchori’, or ‘old village’ (Grivaud 2002: 30). Grivaud (2002: 28) believes that the name ‘Palekchori’ has an origin in an earlier period and has been linked to the fifth or sixth centuries when “the term *kome* dropped out of the current language and was replaced by the word *chorion*”.

Evidence for Lusignan to Venetian period settlement in Palekchori includes structural features within churches and historical documents. Churches in the region date mainly to the early and mid-sixteenth centuries (Sophocleous and Hadjichristodoulou 2002: 77-175; Stylianou and Stylianou 1985: 256-292). Grivaud (2002: 24) has compiled documents concerning land grants between the Lusignans, noble families, and Venetian successions for estates in the Palekchori region (2002: 24). Much more is therefore known about the noble families and Lords than what is known about those that worked on their lands. The study of

communication routes and interaction along these routes offers the chance to redress this balance.

The village of Palekhori may have been an early Venetian period estate that existed on the island prior to 1489. Papacostas (1999: 497) suggests that Venetians were founding estates in the interior of the island around Limassol and the southern Troodos prior to 1489 (Boas 1999: 6; Papacostas 1999: 485, 499). Therefore it is possible that the village of Palekhori was an estate prior to the 1237 deed that first mention the village.

A text from 1232 suggests that taxes in the mountains were different from those in other rural areas (Grivaud 2002: 35-36). The people of Palekhori probably had to give one sixth of their crop to their lord. The amount paid was based on their revenue from the previous three years. In addition, a tax was paid on land, which in turn depended on whether or not you were a serf or a free 'man' (*francomati*). This tax varied between one *hyperpyron* for every 16 *modii* of arable land, 36 *modii* of cultivated land, or 70 *modii* of fallow land (2002: 35-36). The serfs were different from the *francomati*; they had to pay two days of compulsory labour to the lord per year and could not leave their lords' land. How these taxes were collected is unknown. No one knows whether or not the lord of Palekhori lived in the village itself or if agents from outside the village were sent to inspect the village and collect taxes (Grivaud 2002: 36). One of the many responsibilities of the lord was to supply communal facilities such as ovens and mills.

Prior to 1237 Palekhori was a royal fief. Within a royal fief the king granted land to the most important knights, officers and citizens. In October 1237 the royal fief of Palekhori, including its territory and population, was given as a gift to honour the marriage of Balain d'Ibelin and wife Echive de Montbeliard by Hugh I. At this time King Henry made the fief free of feudal debts. Soon after this, it was passed to the Knights of St. John as alms (Grivaud 2002: 31, 33). When the Templar property was then passed to the Hospitallers in 1313 (see Edbury 1991: 78 for alternative date of transfer) the fief included the previously undocumented settlements of Maroullena and Ayios Riginos (Grivaud 2002: 37). Maroullena and

Ayios Riginos may have existed within Palekhori's territory prior to this period. These two settlements are discussed later in relation to interaction within the survey zone.

From the fourteenth century onwards the village of Palekhori was divided into two administrative units based on the Peristerona River (Grivaud 2002: 26). The settlement on the right bank of the river is in the territory of the Vicomte or Viscounty while the administrative district of Pentageia is located on the left bank (Grivaud 1998: 563-568; 2002: 26). This distinction remains today in the current administrative divisions of the village into Palekhori Orini and Palekhori Morphou. Those Road Units surveyed within the North Palekhori Survey Zone include both Palekhori Orini and Palekhori Morphou.

The Psimolophou Estate was located on the fertile plains to the north of Palekhori. According to Edbury (1991: 78) this estate was once owned and run by the Templars. In 1317 a bailiff named Brother Bernard ran Psimolophou Estate for an absent landlord. The estate accounts from this year provide some context for activity in the survey zone. A large number of people worked on the estate. During "the 1317 harvest...the estate employed 1332 men and 150 women and boys" (Richard 1947: 151; Given and Gregory 2003: 290). This estate had a permanent staff of 40-50 people but during harvest controlled 1500 people (Given and Gregory 2003: 292). During this one year a total of 3694.625 bushels of wheat were paid to staff, carpenters, bakers, loaned to peasants, kept for seed, and given as tithe to the church. As slaves formed a significant part of the rural workforce, it is likely that the estate had access to both slave labour and *francomati* (Richard 1985: 273). It is very likely that free men from Palekhori travelled to the estate for work during the harvest season.

Of specific relevance to communication routes within the North Palekhori Survey Zone are the references in these accounts made to the annual expenditure for individuals transporting wine for the estate, the price of wagon components, horse carts and axes for digging forest roads for the transportation of building wood (Richard 1947: 144). These elements of transportation are explored more fully in

the later discussion of *Dhromos tou Appis* and *Strada tou Appis* communication routes.

Palekhori reverted to royal property again between 1310 and 1400. Some suggest that at this time the Hospitallers may have exchanged Palekhori for a different fief. The land was ceded to King John II in 1455 who then granted it to the fiancé of Jean Deras, a member of Frankish nobility, as a dowry (Grivaud 2002: 39-44). By the time of this agreement it appears that the fief of Palekhori was no longer considered 'free' of feudal obligations.

The sixteenth century was a period of prosperity in the Palekhori region. This affluence is especially reflected in the churches and icons in the Palekhori region that date to this period (Grivaud 2002: 47). Similarly, there is evidence for widespread and dense distributions of pottery from the sixteenth century in the SCSP survey area located to the north of Palekhori (Given 2000: 216; Grivaud 2002: 47). As mentioned previously, during the period of Venetian rule the majority of peasants were *francomati* who were not tied to the lord's land but had to give 36 days of labour per a year with a team of oxen in order to get their salary (Richard 1985: 272). In 1530 when Helen de Grenier's son and wife rented out the fief of Palekhori its income was at equivalent to 40 kilolitres of wine (Grivaud 2002: 46-47). In the mid-sixteenth century 120 *francomati* lived in the village of Palekhori, making it the second largest number after the village of Agros. A census in 1565 suggests that during the Venetian period the majority of Palekhori's population lived in the Viscounty (Grivaud 2002: 27, 53).

The inheritance disputes and ownership transfers that provide a rich source of historical information for the Medieval period do not exist for Ottoman period Palekhori. Ottoman records do not mention the village of Palekhori nor are the place names in the region influenced by the Ottoman language (Grivaud 2002: 54). Some believe that the Ottomans never came into the mountains: "comme les implantations turques ne penetrent les montagnes, la toponymie rest stable" (Grivaud 1998: 208-209). Although historical records may not provide evidence for Turkish occupation of the Palekhori region, Ottoman period storage jars were

recovered through Road Unit survey. One tobacco pipe was located outside the survey zone in the region of abandoned village of Maroullena.

Throughout Cyprus the Ottoman period was a time when many villages were abandoned. Disease, drought, earthquake and locusts appear to be the main causes of depopulation (Given 2000: 216). In the North Palekhori Survey Zone this period is marked by the abandonment of villages in the countryside and the nucleation of this population in the village of Palekhori. Oral history relates that the villages of Ayios Mamas, Appis, Ayios Nikolaos, Vrysi tis Adkias, Ayios Giorkis, Skledros or Sklidros, Petritidis, Agroteros, Pan' Aplizin, Maroullena and Milourin were abandoned between 1600 and 1700 (Grivaud 1998: 215, 184-185; 2002: 55). The village of Appis and Ayios Giorkis both exist within the North Palekhori Survey Zone, while Ayios Nikolaos, Skledros, Maroullena and Milourin are located within 4 km of the survey zone. The locality names *Skledros* and *Maroullena* are both located within the survey zone and, as will be discussed later, may refer to village lands. Traditions recorded by Kliridis (1949: 184-186 in Grivaud 2002, 55) say that the village of Maroullena was devastated by a series of epidemics that caused the villagers to resettle in Palekhori.

It is difficult to assess whether village abandonment during seventeenth century was solely the result of massive depopulation or if there were other reasons for the nucleation of the population in Palekhori. Even if disease and starvation greatly reduced the population, the social and economic security of living in a larger village may have attracted people from smaller outlying villages.

The economy of seventeenth century Ottoman period Palekhori focused on viticulture and the production of wine. Of the 20 hectares under cultivation in Palekhori Orini 66 percent was used for viticulture. Similarly, Palekhori Morphou had 75 percent of their 22 hectares in vines (Grivaud 2002: 55-56). Wine was not exported abroad from Palekhori during the Ottoman period but instead was used for the local Cyprus market. Wine from the mountains was traded for wheat cultivated on the plains. This wheat was transported back to the village of Palekhori for milling (Grivaud 2002: 55). Resources were transported mainly by

path. Networks of paths formed an integral part of the exploitation and movement of resources through and out with, the survey zone.

Cadastral plans show scattered plots of privately owned land and *hali* land throughout the North Palekhori Survey Zone. Private land includes buildings, gardens and trees (Christodoulou 1959: 72-73). *Hali* land is classified as abandoned land that is unproductive or at a distance too far from villages to cultivate. These land type designations provide valuable information about how land was used in the past.

The landscape of Cyprus changed considerably during the Ottoman period. Land ownership fragmented the land. The more that land was passed to heirs the smaller the plots of land became. This fragmentation of land into increasingly smaller plots divided the landscape. In those areas where topography was steep and terraced, such as in the North Palekhori Survey Zone, land plots followed the contours of the terraced slopes (Christodoulou 1959: 84). Farmers had to journey from their villages to increasingly scattered plots of land, which significantly lengthened travel times and distances. The potential impacts of landownership and the fragmentation of holdings on interaction in the North Palekhori Survey Zone are discussed later in this chapter.

Unlike the early Ottoman period, the late Ottoman to Modern period was prosperous. The population of Palekhori in the nineteenth century numbered 400, while in the SCSP survey area 19 percent of all pottery found was dated to the Ottoman period and 17 percent to the Modern period (Given and Gregory 2002: 284; Grivaud 2002: 57). The population of Palekhori doubled in the British Colonial period. Schools were built and communal facilities were modernised. In the later periods of British rule the road from the plains into the mountains was modernised and enabled easy movement north to south by vehicular traffic.

The administration of the village of Palekhori was separated into Pentageia and the territory of the Viscounty throughout the Ottoman and British Colonial periods. The division of the religious administration continues in Palekhori even though today the whole village of Palekhori is considered one municipality

(Grivaud 2002: 26). Until 1975 the kontrada of Pentageia was dependent on the Metropolis of Kyrenia (today the Bishopric of Morphou) while the Vicounty continues to be administered through the Archbishopric. Within this chapter I follow the distinction used by cadastral plans between Palekhori Morphou (previously the district of Pentageia) and Palekhori Orini (the district of the Viscounty). The northernmost part of the North Palekhori Survey Zone falls under the jurisdiction of the village of Palekhori Morphou while the southernmost area belongs to Palekhori Orini.

4.2 Physical landscape

The dramatic topography of the North Palekhori Survey Zone influenced how the land was used and how people interacted. Although I do not believe that topography necessarily determines how people move through the landscape, topographical constraints influence the choices available to movement.

The highest part of the North Palekhori Survey Zone is composed of steep ridges with scree slopes. Erosion has exposed the Ophiolite sequence – what remains of the oceanic lithosphere making up the Troodos Massif. In the North Palekhori Survey Zone eroding mountains are steep and in some cases the pillow lavas have eroded leaving the unstable sheeted dyke system visible (Christodoulou 1959: 12; Gass 1980: 24-25). Muti tis Lajeris located just to the north of the village of Palekhori, in the southernmost part of the survey zone, is such an example. The steep mountainside and exposed bedrock of Muti tis Lajeris has affected the structure and morphology of the paths that cross its ridgeline. The Maroullena and Palekhori Rivers run north-south incising the landscape. As a result, mountain ridges within the North Palekhori Survey Zone primarily run in north-south direction.

The communication routes surveyed within this Survey Zone follow ridgelines. The main communication route *Dhromos tou Appis* follows a mountain ridge that is oriented north-south and does not dip below 875 metres above sea level. Where there are hollows or river valleys between these ridges the area is fertile with plentiful water. Examples of such areas are the localities of *Lakxioes tou Ayiou Yeorgiou*, *Agriolakhania*, *Arkohermera*, *Sklidhridhi*, *Appis* and the village of

Palekchori (cadastral plans XXXVIII 44-45, XXVIII 60). The village of Palekchori lies in the southernmost extent of the survey zone encircled by mountains where the Peristerona and Palekchori rivers meet.

4.3 Land use

Today the land within the Palekchori Survey Zone is privately owned and predominantly used for the cultivation of nut trees and private gardens. Cultivation of almonds is popular, as they are resistant to drought and produce fruit even in rocky, sloping land (Christodoulou 1959: 175). Abandoned terraces throughout the area suggest a period when terraces were used for the production of vines. The Pitsilia region was well known for the production of Commanderia wine (Christodoulou 1959: 207). Michael de Vezin who lived in Cyprus in the 1700s documents that the Orini District of Cyprus was best known for its Commanderia, garden produce and hams (Cobham 1908: 372-373). Although wine was not exported from Palekchori during the Ottoman period, Palekchori may have been involved in the export of Commanderia to Venice during the earlier Venetian period. Documentary sources list Palekchori village producing 160 *metre*, or 40 kilolitres, of wine in 1530 (Grivaud 2002: 46-56). Communication routes were essential for the successful transportation of wine to and from fields, presses and regional markets. Wine was most often transported after September when the weather was cooler and there was less chance of it turning to vinegar (Christodoulou 1959: 207).

Vineyards require much labour. The grape harvest takes place in Cyprus from September to October (Richard 1985: 276). Ploughing was not possible in the steep region of the North Palekchori Survey Zone and instead vines had to be dug by hand. The social aspect of cultivation should not be ignored: planting in the past was cooperative with friends and relatives working together and “later partaking in a feast” (Christodoulou 1959: 156).

4.4 Path location

Data collected in the North Palekchori Survey Zone is discussed thematically in three main sections. I separate the discussion of Road Unit morphology and route

form into topographical areas because the dramatic topography of the survey zone plays a role in their location and form. The purpose of communication routes, their construction and maintenance is integrated within the context of regional history, land use and land ownership. Movement is the final theme addressed with relation to stopping places and how different methods of travel influence the overall rhythm or pace of travel along the *Dhromos tou Appis* communication route.

The topography of the North Palekhori Survey Zone limits the options that are available for moving through the environment. Topography may influence the decision-making process but individual preference plays a role in deciding how to deal with these topographic constraints. Human interaction and movement can be better understood through investigating the relationship between communication routes, topography and human choice. In the following section I discuss how specific topographical features influenced the location of communication routes in the North Palekhori Survey Zone (Figure 4.2).

The main communication route within the survey zone runs north-south along the mountain ridgeline. To ascend to the main ridgeline from the adjacent river valleys one must cross four main topographic areas: spurs, ridges, saddles and hill slopes. These topographic areas form the framework for discussing characteristic features of Road Units within this survey zone.

In the North Palekhori Survey Zone, where travel was done by foot and pack animal, steep slopes required great energy expenditure on the up-grade while on the down-grade fighting momentum from gravity required constant bracing (Bhattacharjee and Basu 1966: 22-23). Over time this reaction to slope influenced the stability of each path surface in the survey zone.

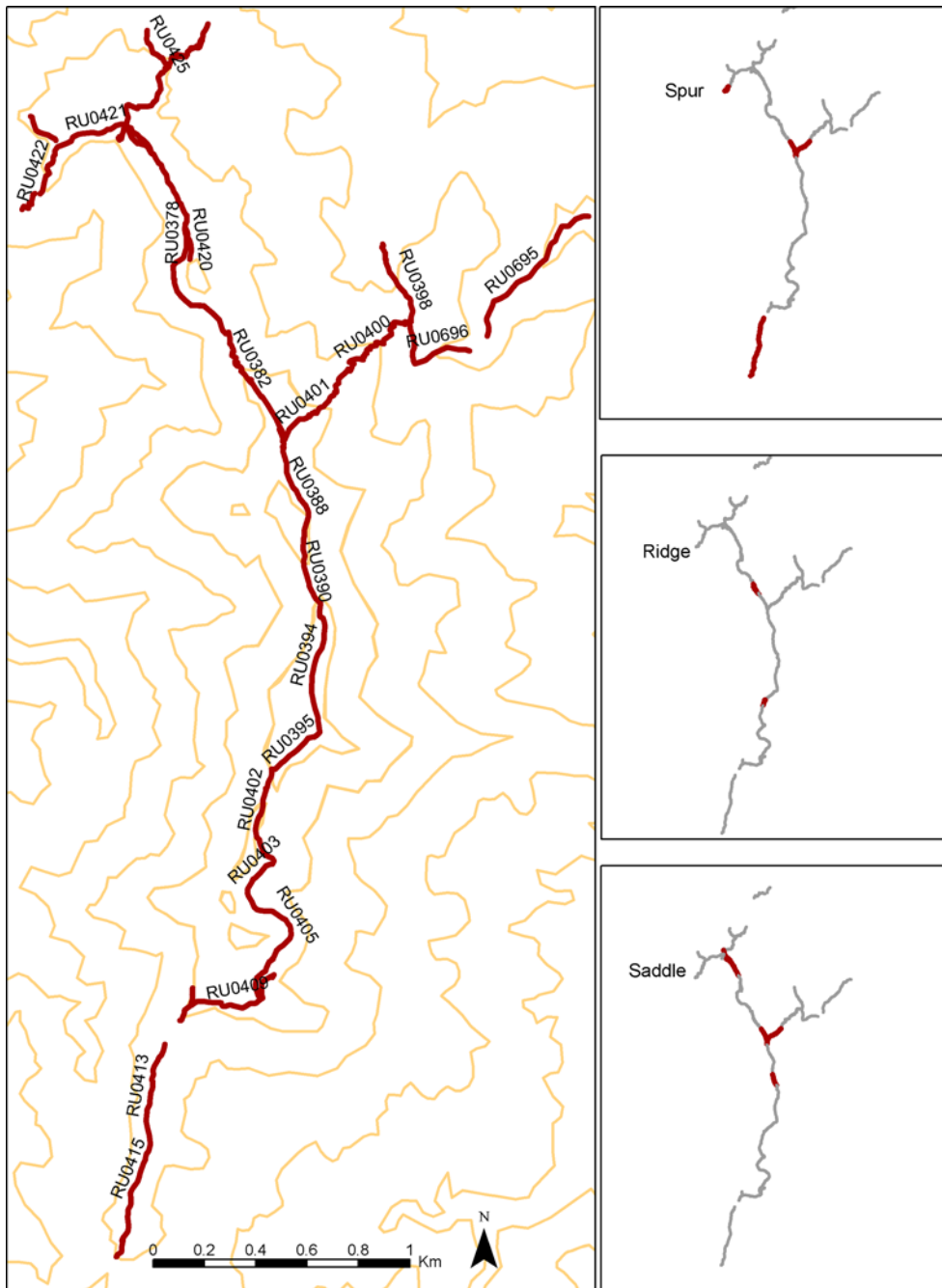


Figure 4.2: Map of block surveyed Road Units.

4.4.1 Spurs

Paths that ascend or descend spurs have characteristics and morphological differences based on the combination of slope, surface stability and path composition. There are three main spurs with paths in the North Palekhori Survey Zone. Each of these has slopes of over five degrees with either unstable or eroded surfaces. The instability of the surface of Road Units along spurs and ridges is not surprising. The North Palekhori environment is prone to instability from erosion.

Minimal soil accumulation on spurs or ridges leaves portions of sheeted dyke bedrock exposed. Unless these paths are abandoned for long periods of time, soil is unlikely to form on their surfaces.

There are two different types of paths associated with spurs in the survey area. The distinguishing characteristics between these two are related to the slope of the spur. Paths that ascend gently sloping spurs alternate between following contour lines and travelling along the ridge of the spur keeping to a smooth course. Alternatively, paths ascending or descending steep slopes modify the slope through switchbacks. Switchbacks are an efficient means of gaining elevation quickly by dividing the steeply sloped surface into smaller more evenly sloped segments.

The only gently sloping spur of the three surveyed is located north of Palekhorri village. The path that runs along this spur, shown in Figure 4.3, is composed of RU0413-RU0418 labelled below running north to south along the crest of the spur. These units have an average six-degree slope. Their total length is 1544 metres with an elevation change of 80 metres. Therefore, every four and a half metres in distance one metre in elevation is either gained or lost. By travelling along the crest of the spur, the path maintains a relatively low slope.

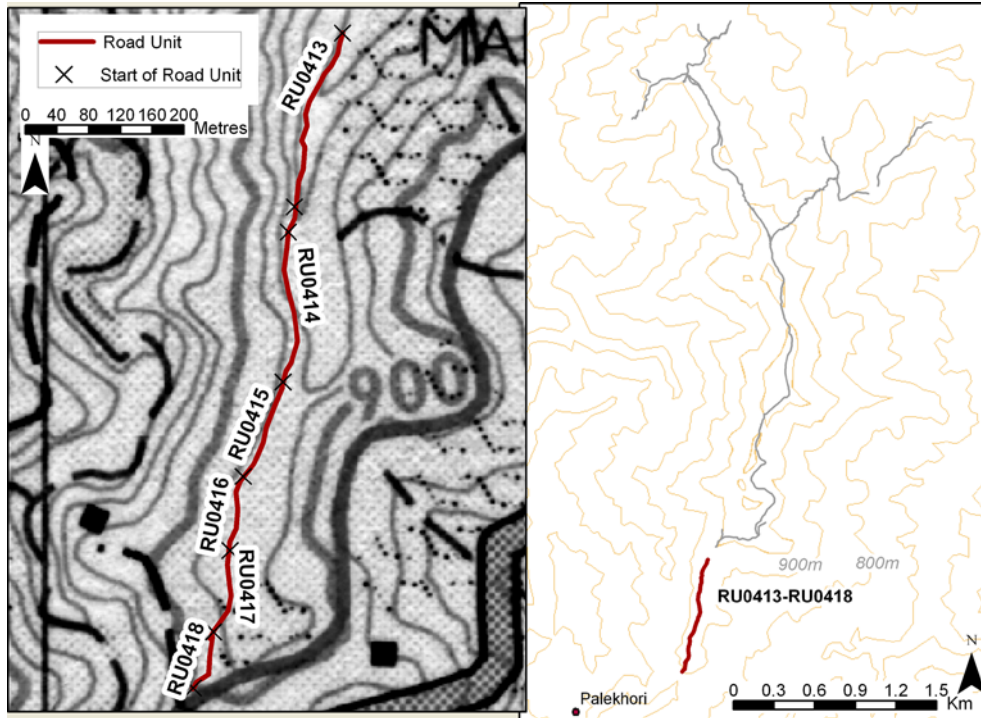


Figure 4.3: Map of Road Units along spur to the north of Palekhori Village.

Unlike the gradual slope of the above spur, the paths that ascend steep slopes in the localities of *Appis* and *Ptheros tis Lajeri* have different characteristics. These paths ascend steep slopes and are constructed in a technique used to deal with steep gradients. In both cases the Road Units have a mean slope greater than seven degrees. In the locality of *Appis* RU0423 has a slope of ten degrees. Likewise, the 906 metre long spur in *Ptheros tis Lajeri* (Figure 4.4) is composed of Road Units (RU0384, RU0385, RU0386, RU0401) running northeast to southwest (top right of image to bottom left) with an average slope of 8.6 degrees. In both cases paths ascending spurs steeper than seven percent are composed of a series of switchbacks.

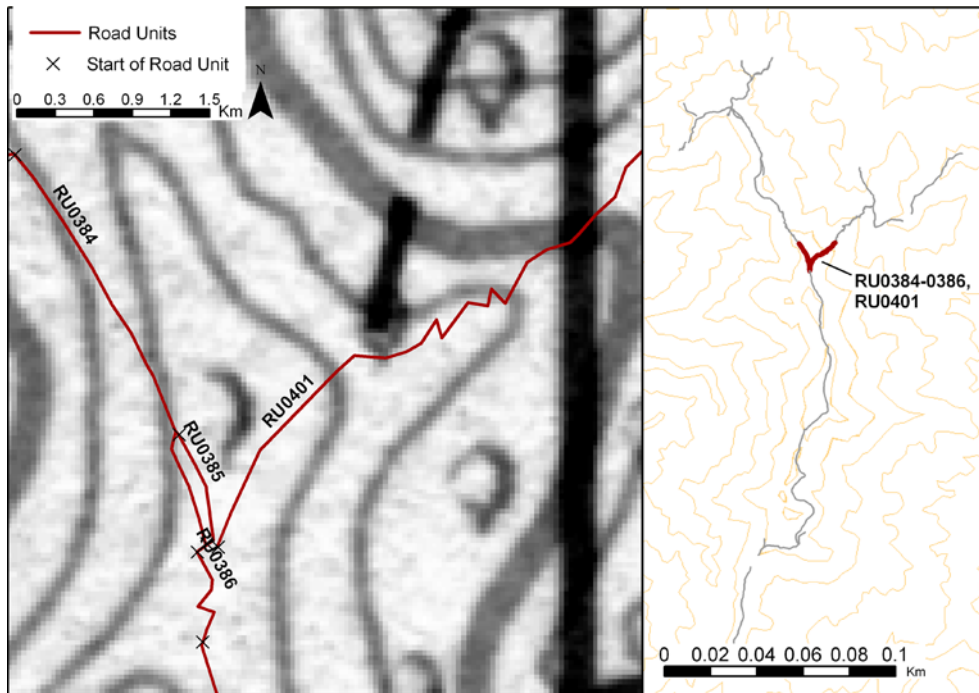


Figure 4.4: Map of spur with Road Units RU0384, RU0385, RU0386 and RU0401 in switchback form.

Although the topography of the spur influences the morphology of these paths one should not assume that it is the only factor involved. Many non-topographical factors influence the structure and frequency of switchbacks. The nature of transport, land use, the stability of the path surface and specific tastes of the local population all play a role in their structure. The presence of switchbacks, their frequency and length were designed into the paths. The people who travelled or planned to travel these paths chose to have many small switchbacks or fewer longer switchbacks based on their travelling needs. The morphology of the switchbacking paths located during this survey represents the last agreed structure of the path. In the past there may have been greater or fewer switchbacking segments of path of similar or varying lengths depending on the method of travel and the priorities of the population that used them.

Switchbacking paths are not only found on spurs. There are two cases where sloping ridges use the zigzag technique in the North Palekhori Survey Zone. Road Unit RU0382 uses this technique to deal with the same topographical challenges as the spurs. This ridge has a slope of seven degrees and therefore over the 209

metre long Road Unit one metre of elevation is gained or lost every 5.2 metres. This slope is comparable to the switchbacking spurs discussed previously.

There are exceptions to the proposed switchback or slope hypothesis. Road Unit RU0386 is a path that runs along a saddle. This path has switchbacks even though its slope is five degrees over a distance of 49 metres. This slope is comparatively slight when compared to other Road Units that have a switchback structure. Nonetheless RU0386 has been constructed using the switchback technique.

Especially interesting is the similarly anomalous case of RU0381 located just to the north of RU0382. Although these two adjacent units are remarkably similar in slope, surface composition and stability, RU0381 does not employ the switchbacking technique while adjacent RU0382 does. One would assume that paths that travelled through a similar topography would have similar characteristics, but this is not the case. Slope, and topography as a whole, is seldom a determining factor in the morphology of paths.

4.4.2 Ridges

Only four of the 68 Road Units in the North Palekhori Survey Zone were constructed along ridgelines. The total length of these units varied widely from the steeply sloped switchbacking RU0382 to moderate five degree slopes. These ridgeline paths followed the highest possible elevation. Similarities between these Road Units are based on stability, width and structural features. All Road Units that were located along ridgelines have unstable or eroded surface stability and widths less than one metre. The majority of these path surfaces are composed of partial bedrock while worn or cut bedrock is present in both Road Unit RU0382 and RU0396. Worn bedrock provides evidence of path use in areas of bedrock while the modification of bedrock through cutting is a technique that was used throughout the survey zone to gain stability by carving flat and wider surfaces. The infrequent presence of paths on ridgelines suggests that these were not popular places for their construction. It appears that paths were only constructed along ridgelines when alternative routes were unavailable. I suggest that paths

along ridgelines required more maintenance as their stability was continually compromised.

4.4.3 Saddles

There are three main saddles in the North Palekhori Survey Zone. Saddles exist along ridgelines as the lowest part of the ridge and have peaks on either end. I have not distinguished Road Units in the lowest parts of the saddle from those in the upper portions of the saddle near the peaks for two main reasons. First, although the lowest points of saddles are easy to identify on topographical maps they are more difficult to identify in the field. Secondly, their change in morphology, slope and width were not always pronounced enough to warrant a new survey unit. Therefore, most Road Units located along saddles include portions of the lower and upper reaches of the saddle. Because some units climb higher along the ridgeline than others, the slope, surface stability and width of individual Road Units is variable and difficult to compare. The similarity between these Road Units is limited to an average slope of four degrees with an average width of less than one metre.

Topographically, mountain ridges and spurs often diverge and converge at saddles, which in turn influences the course of paths. This topographic location of saddles, the characteristic wide surface area and minimal slope make them logical spots to pause. In the North Palekhori Survey Zone saddles are areas of decision making and resting (see Section 4.7.1).

4.4.4 Contour lines

The majority of Road Units located in the North Palekhori Survey Zone follow topographic contours. By constructing paths along lines of approximately equal elevation, those people using the path did not experience large changes in slope. Similarly the low slope increased the stability of the path by reducing the overall potential for erosion by water run-off. In general these paths follow lines of closely similar elevation but still have an average slope of 3.6 degrees and an average width of 1.3 metres. The width of these Road Units is slightly higher than

the average 1.1 metres that is characteristic of all road survey units in the North Palekhori Survey Zone. Paths such as RU0378 and RU0379 facilitate easy movement (Figure 4.5). The paths' wide surface area makes it possible for beasts of burden like donkeys to carry wide loads. In some cases the widths of these paths were great enough for travellers to pass each other.

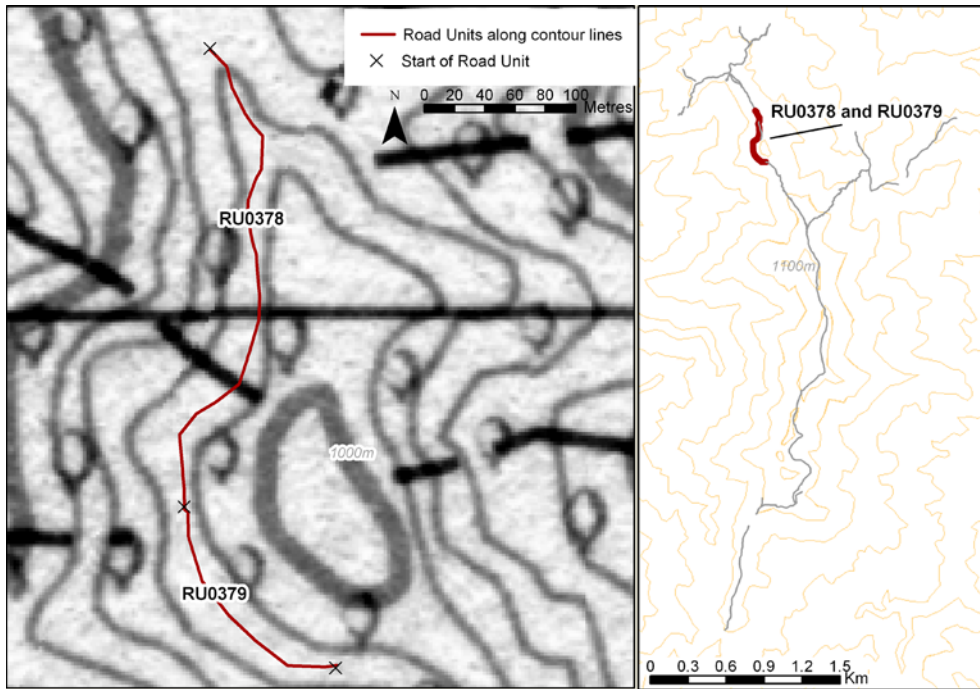


Figure 4.5: Location of Road Units RU0378 and RU0379 following contour lines.

Road Units following contour lines are the most stable of all Road Units in the survey zone (Table 4.1). Paths built on these surfaces are more likely to have part of their soil A horizon intact.

Average surface stability	Stable	Unstable	Eroded
Total in survey area (n=68)	24%	59%	18%
RU along contours (n=21)	38%	52%	9%

Table 4.1: Stability of Road Units along contours.

Building paths that follow mountain contours requires modifying the side of the mountain to keep the slope of the path low. In many cases great amounts of labour were necessary to dig into the mountainside and build up the path surface. Once constructed the stability of the path was easily maintained. Paths that follow

contours alternate between being erosional and depositional environments. During periods of heavy rains in the winter and spring these paths act as sediment traps where soil or rock from above the path falls onto the surface. Large stones obstructing movement could be easily moved to the side of the path while the sediment from the mountainside above is incorporated into the path surface. The path surface is most susceptible to erosion during times of the year when traffic on the path is greatest. To counter such erosion and instability the outside edge of some paths was given a retaining wall to ensure that the path remained stable.

Stone retaining walls are one of the most distinct structural elements of Road Units located in the North Palekhori Survey Zone. Over half the Road Units surveyed have evidence for such walls. Building upon the meaning of terrace as an artificially formed flat area on steep slopes for cultivation, these walls are assigned the term 'terraced paths' as they use similar technology to that used in agricultural stone-armoured terraces. This 'terracing' of paths varies from well made one to two metre high walls to simple lines of stone. This is the only survey zone where terracing technology was applied to paths.

Terracing is used as a means of providing extra stability to the surface of paths. It is a technique where the outside edge and side of the path are armoured with stone. Along contour lines terracing often reaches heights up to 2 metres depending on hill slope. In other areas terracing consists of a simple outline of stones. Stone used for terracing varies from small fist-sized to larger more angular boulders. Angular stone appears most often in those areas where paths are dug deeply into the mountainside. In these cases stone from the excavation of the path is used to construct the terrace. Other more rounded stones may originate from disused agricultural terracing, abandoned dwellings or streambeds (Figure 4.6).



Figure 4.6: Structurally terraced Road Unit using rounded stone.

Evidence for terracing is greatest among paths that follow roughly the same elevation. In total 17 of 34 (or 50%) of terraced paths in the survey region were located along similar contour lines while 26%, 5% and 17% were found along spurs, ridgelines and their saddles.

Table 4.2 lists the surface stability, slope and average width of terraced and non-terraced Road Units found along similar elevations.

Surface stability	Stable	Unstable	Eroded	Slope (degrees)	Width (m)
Terraced (n=68)	50%	50%	0	3.6	1.3
Not terraced (n=68)	14%	57%	28%	3.6	1.3

Table 4.2: Surface stability, slope and average width of terraced / non-terraced Road Units.

As noted above, terraced paths running along similar elevations are much more stable than those without terracing. It is expected that terraced Road Units would have more stable surfaces than non-terraced paths. It is surprising, however, that there are no differences in width or slope between these units. The preference for terracing or not terracing paths is less straightforward than stability figures suggest. Figure 4.7 shows Road Units RU0370 and RU0369 that have almost identical widths and slopes.

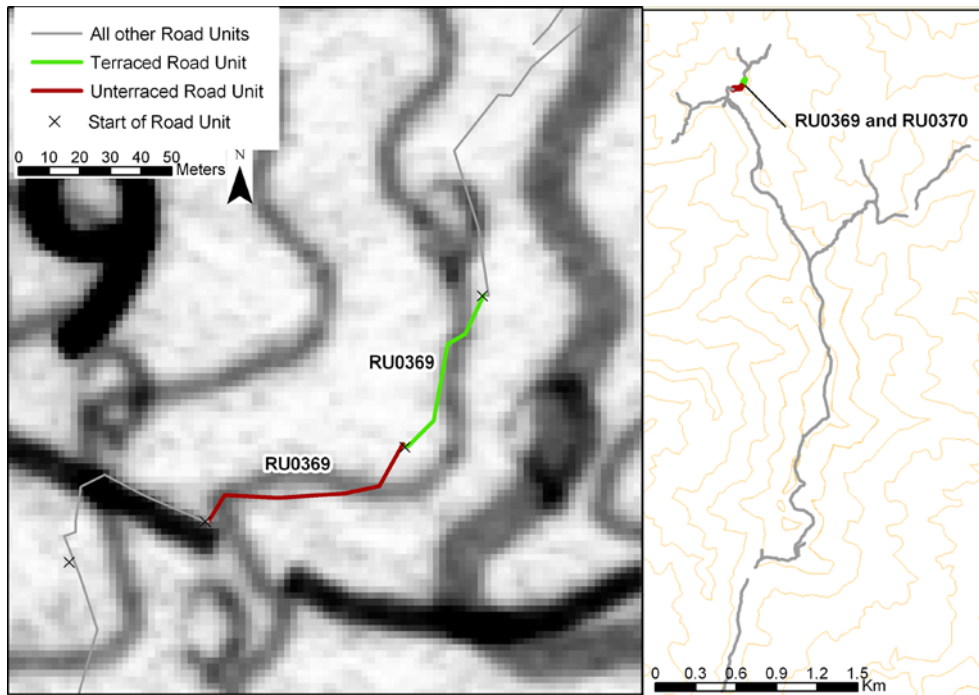


Figure 4.7: Road Units RU0369 (terraced) and RU0370 (unterraced).

Both units are stable but RU0370 is not terraced and RU0369 is terraced. Because these units are directly adjacent to one another it can be assumed that both Road Units received the same amount of traffic. Assuming that the main reason for terracing paths was to create a more stable surface, the differential terracing of Road Units with similar characteristics implies that at the time that RU0369 was terraced RU0370 was still stable. Thus, these two Road Units represent two different phases in the paths history.

4.5 Land use and interaction

The reasons for constructing, using and maintaining paths are closely linked to the way that people used the land. It is possible to understand the reasons for specific structural features of paths and their position in the landscape better through a more detailed investigation of how the land in the survey zone was used.

Cadastral plans provide information that leads to a greater understanding of land ownership and the relationship between locality names, village territories and the location of abandoned villages (see Grivaud 1998). For example, it is probable that the village localities of *Appis* and *Maroullena* correspond to the land of these respective villages. These villages are located at 1.2 and 1.3 km from their land.

This distance is well within that projected for individuals travelling from village to field on their daily commute (Given 2000: 221).

Grivaud (1998: 185; 2002: 55) mentions that in the area of Palekhorí there exists a village named Sklidridi/Skledros or Sklidros, an abandoned settlement with ruins of the church of A. Marina. It is likely that the locality name of *Sklidhridhi* found on the cadastral plan corresponds to this abandoned village.

Documentation states that this village was abandoned at the same period as many of the other villages in the area. Three unusual Road Units mark the locality of *Sklidhridhi*. Road Units RU0414, RU0416 and RU0417 are located between two high walls. The wall along RU0417 rises to a height of one metre. Both the path and the land are terraced in this area. When asked about these walls in April 2003, villagers from Palekhorí and Askas said that in some cases walls from abandoned structures were incorporated into terrace walls while stone from abandoned structures was frequently reused in terrace walls. Although the concentrated and localised distribution of stone in RU0414-RU0417 suggests that the path terracing is related to the abandoned structures from the village of Sklidridi, reconnaissance survey of the area did not recover any evidence to support such a settlement. The absence of structures and pottery suggests that the village did not exist in this region. Instead, *Sklidridi* locality refers to the fields and land belonging to, and used by, the village of Sklidridi.

Lands belonging to the fief of Palekhorí included the village territories of Appis, Maroullena, Ayios Nikolaos, Ayios Giorkis and Sklidridi. This land was used at least partially for the cultivation of vines. During the Medieval period it is likely that these villages transported their grapes or wine to the market or storage facilities belonging to the lord of Palekhorí. It is uncertain if these grapes were transported in baskets or if the grapes were pressed first and then the juice was transported in skin bags to Palekhorí. The pottery located in the survey zone is not conducive to the storage of either grapes or grape juice. The structural remains present in the abandoned village of Appis do not provide evidence for the pressing of grapes. Too few remains exist in the villages of Maroullena and Ayios Nikolaos to determine whether or not pressing of grapes took place.

Two weight-stones for weighting the beam in a lever to press olives are located near the abandoned village of Ayios Giorkis (Hadjisavvas 1992: 60). One stone is located near a path surface within close proximity to the rubble of the village, has a width of approximately 30 cm and a height between 45 and 50 cm. (Figure 4.8).



Figure 4.8: Weight-stone from olive pressing in Ayios Giorkis (50 cm wide).

The second stone is incorporated into the wall of a modern stone built structure found in the outskirts of the village. This stone is hewn on one side and has dimensions of approximately 30-35 cm in length and 30cm in width. Both stones are ‘Type 1’ for use in simple lever-and-weight style olive presses (Hadjisavvas 1992: 60). Unlike later screw presses these stones have horizontal but no vertical perforations (Hadjisavvas 1992: 36). Earlier varieties are small with an average height of 50 cm. The weight stone located along the path is consistent with this small size. The second stone found is also small but its lower half seems to have been modified, possibly for re-use in this structure. Stones of this Type 1 form have been excavated in Cyprus from Late Cypriot IIC sites, Hellenistic sites and Early Byzantine sites. These stones were also used in conjunction with the vertically and horizontally perforated stones that date onwards from the Classical period (Hadjisavvas 1992: 60). Later varieties of this type of stone are basket-shaped and taper upwards (1992: 61).

The unstratified context of these weight stones makes it difficult to assess when olive oil was pressed at Ayios Giorkis. Pottery located in the abandoned village of Ayios Giorkis dates mainly to the sixteenth century onwards but also contains the toe (5 cm in diameter) of one small Late Classical to Hellenistic stemmed transport amphora. The abandoned village of Ayios Giorkis is best known by the elders of Askas Village whose parents tended gardens in its territory. They know the stone located on the path not as a weight stone for olive pressing but instead as the stone where St. George tied his donkey or horse. This story about the stone is an active part of how they define their landscape and their position in it. The depth of their memory and the landscape does not go back as far as when the stone was still used to press olives.

The early dates for the weight stones have two very interesting implications on the interpretation of communication routes in the survey zone. First, if they date to the pre-Medieval period then it is safe to assume that the land cultivation, terracing, and paths found in the vicinity of Ayios Giorkis also date to this time period. If olives were pressed in the village of Ayios Giorkis during the Medieval period prior to the village's abandonment between the seventeenth and eighteenth centuries, then this oil must have been transported out of Ayios Giorkis by path – possibly via *Dhromos* or *Strada tou Appis*.

Terraces were constructed in the survey zone as a means of expanding and providing stability to cultivable land. The main reason for terracing in general is to control erosion, conserve water and to reclaim land (Fredrick and Krahtopoulou 2000: 81-82). The bench terraces in the North Palekhori Survey Zone are made of high vertical walls of stacked stone called risers and level platforms that follow the contours of the slope called treads (Treacy and Denevan 1994: 98-99). Although it is tempting to suggest that these terraces were constructed as a single project under the authority of the lords of Palekhori, evidence suggests the opposite is true.

Researchers in the Vasilikos Valley in southwestern Cyprus used cadastral plans to investigate whether terracing located within their survey area was a single

operation or if it was related to private land ownership. They found that terraces corresponded with private landownership boundaries. This association meant that terraces were constructed after the land came under private ownership and they could therefore securely state that the terraces in the region were not produced as a single project (Wagstaff 1992: 158).

Cadastral plans from the North Palekhori Survey Zone provide enough information to build a rough chronology of when terraces were constructed in the area. Figure 4.9 is an example of a typical cadastral plan showing terraced fields and land plots.

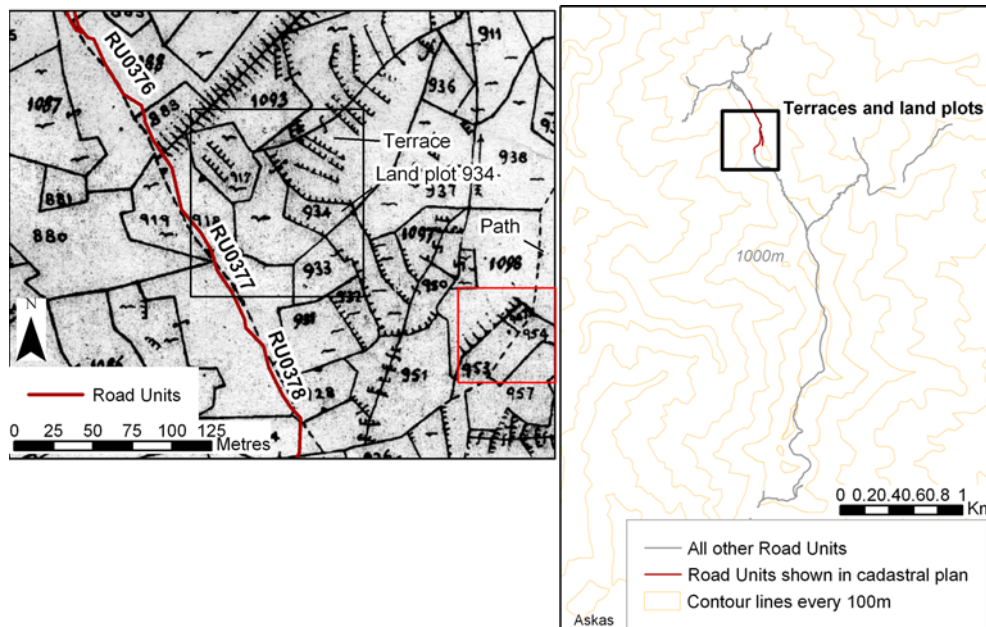


Figure 4.9: Cadastral plan showing terracing, land plots and paths.

The terraces in the green box above show both terraces within land plots (such as plot 950) and terraces forming the boundaries between land plots (such as plot 932). It is evident from the variation in terracing shown in the cadastral plan that these terraces were not constructed as a single project. Small terraces confined within the land plot are visible in plot 917. These terraces were presumably constructed following the division of land into privately owned plots. Longer terraces that cross the boundaries of land plots or form the boundaries of several land plots, such as those associated with plot 933 and 934, are different. I suggest that the long terraces dividing land plots are the remains of terraces from a period before land came under private ownership. This cannot be proven from the

cadastral plan alone. Dating of these terraces should include subsurface exploration in addition to cadastral plan analysis and lichenometry (Frederick and Krahtopoulou 2000: 92-93).

The cadastral plan provides evidence of two different phases of terrace production. The first phase predates private landownership that was gradually instigated under Ottoman Law. The second phase postdates this law and can therefore date from the mid-Ottoman period until the cadastral plan was created in 1924.

The relationship between terracing technology and paths is not surprising. Terracing of the landscape creates additional soil for cultivation while providing it at convenient location (Wilkinson 2003; 191). The majority of terraced paths (24 of the 34) are located in areas where the land is agriculturally terraced. Conversely, 10 of the 34 paths display no evidence of structural terracing but are still located in areas where the land is terraced. There is only one case (RU0387) where a terraced path is not located in a region where there is terracing in the surrounding area. It is evident from this association between terraced paths and terraced agricultural land that these two processes were contemporaneous.

Little is known about the relationship between ownership of land and the ownership of individual paths. Private or communal ownership of segments of path and communication route further complicate the interpretation of construction, maintenance, and land use. One of the only pieces of documentation that refers to road and path ownership is from the Ottoman Period. The *Mejelle* is the mid-nineteenth century Ottoman Civil Code that was elaborated between 1869 and 1875. Tyser *et al.* (eds), translated this text into its English and published it in 1901. According to *The Mejelle*, in cases where roads are owned by all landowners they all have right of passage (Tyser *et al.*(eds) 1901: 144, 174-175). Whoever owns the land first and provides the access route has right of way, which is the equivalent of ownership, and his/her land is valued accordingly. When land is partitioned access and right of way is included in the agreement. Owners of

adjacent land may co-own or individually own a road or path granting other landowners the right of passage (Tyser et al. (eds) 1901: 174-175).

Referring back to Figure 4.9, the box outlined in red shows three plots of land 947, 953 and 954. Land plot 954 is separated from plot 953 and 947 by a path. From the plot size and overall shape it is evident that these plots once belonged to one individual whose land was then subdivided through inheritance into four parcels (Christodoulou 1959: 84-85). Such subdivision became common practice during the latter Ottoman and British Colonial Periods and still continues today. Prior to the subdivision into plots 953 and 954 the same individual owned path and land. When the land was partitioned the path became the boundary between separately owned plots. At this time either the original landowner remained the sole owner of the path with right of way or it was co-owned by each heir. Further research into the relationship between kin groups, path ownership and path maintenance poses the possibility of locating family techniques of building and maintaining paths. Unfortunately, such themes are beyond the scope of this piece of research.

The cadastral plan shown below in Figure 4.10 was made in 1924. At this time the land was classified as *hali* land or '*Arazi Mevat*'. These terms originated during the Ottoman period to designate wasteland or land that is unoccupied (Christodoulou 1959: 73). This land is still classified as *hali* today even though the plan was revised in 1984, 1985 and 1989.

Interestingly, within the survey region there are several examples of agricultural terracing and terraced paths in *hali* land. This is best illustrated by three Road Units (RU0379, RU0380, RU0381) that cross through terraced *hali* land (Figure 4.10). Road Unit RU0379 is structurally terraced. The abandoned terracing and cadastral designation implies that agricultural terracing and path maintenance through structural terracing fell out of use prior to the 1920s when cadastral plans were drawn.

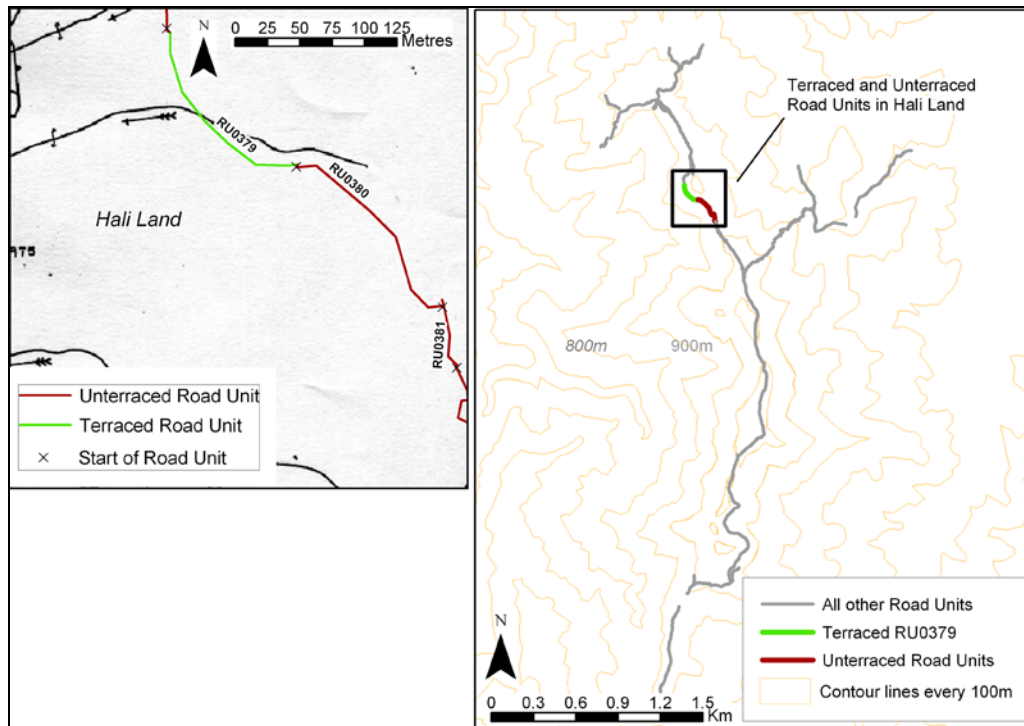


Figure 4.10: Unterraced and terraced Road Units RU0379, RU0380 and RU0381 in Hali land with abandoned agricultural terracing.

4.6 Routes of movement

Communication routes are the overall course that movement through the landscape that may be made up of several different roads or paths that change as interaction between people changes. In the North Palekhori Survey Zone there is one main communication route running north-south following the ridgeline of the mountains called '*Dhromos tou Appis*'. It is composed of, or associated with, 67 individual Road Units.

People from the villages to the southeast and southwest of the North Palekhori Survey Zone, Askas, Apliki and Palekhori, know this communication route as '*Dhromos tou Appis*' or 'road of Appis'. Appis is both the name of the locality within the northern section of the survey zone and the name of the now abandoned settlement of Appis. Villagers speak of another route called *Strada tou Appis* located to the east of *Dhromos tou Appis*. This route was not located in the initial survey period but was found during post-season reconnaissance, and recorded by GPS. Although local villagers know both communication routes, knowledge of

Dhromos tou Appis is more engrained into their identity and perceptions of landscape.

When villagers are asked about the route, they point to the mountains and say that it “travels along the mountaintops, it is very difficult and can be dangerous”.

Whether or not people have ever travelled the route themselves is not important. The importance of the route lies in the knowledge of it – to be able to point to the mountains and say “it goes along there”.

The development of this route may be understood through the analysis of individual path segments. Their significance within this route can be determined through the analysis of features that suggest the dominant direction that people travel and the amount of energy invested in the construction and maintenance of paths. Assessing these two factors will be completed through the analysis of Road Unit width, structural features and junctions.

4.6.1 Road Unit width

Logically, there is a strong relationship between the width of a road or path and its importance within a communication network. Path width is related to traffic capacity and transport type. The most common widths of path in the survey zone are the 0 to .9 metre and 1 to 1.6 metre groupings (Figure 4.11). There are few with widths less than .5 metres and none that have a greater width than 3 metres.

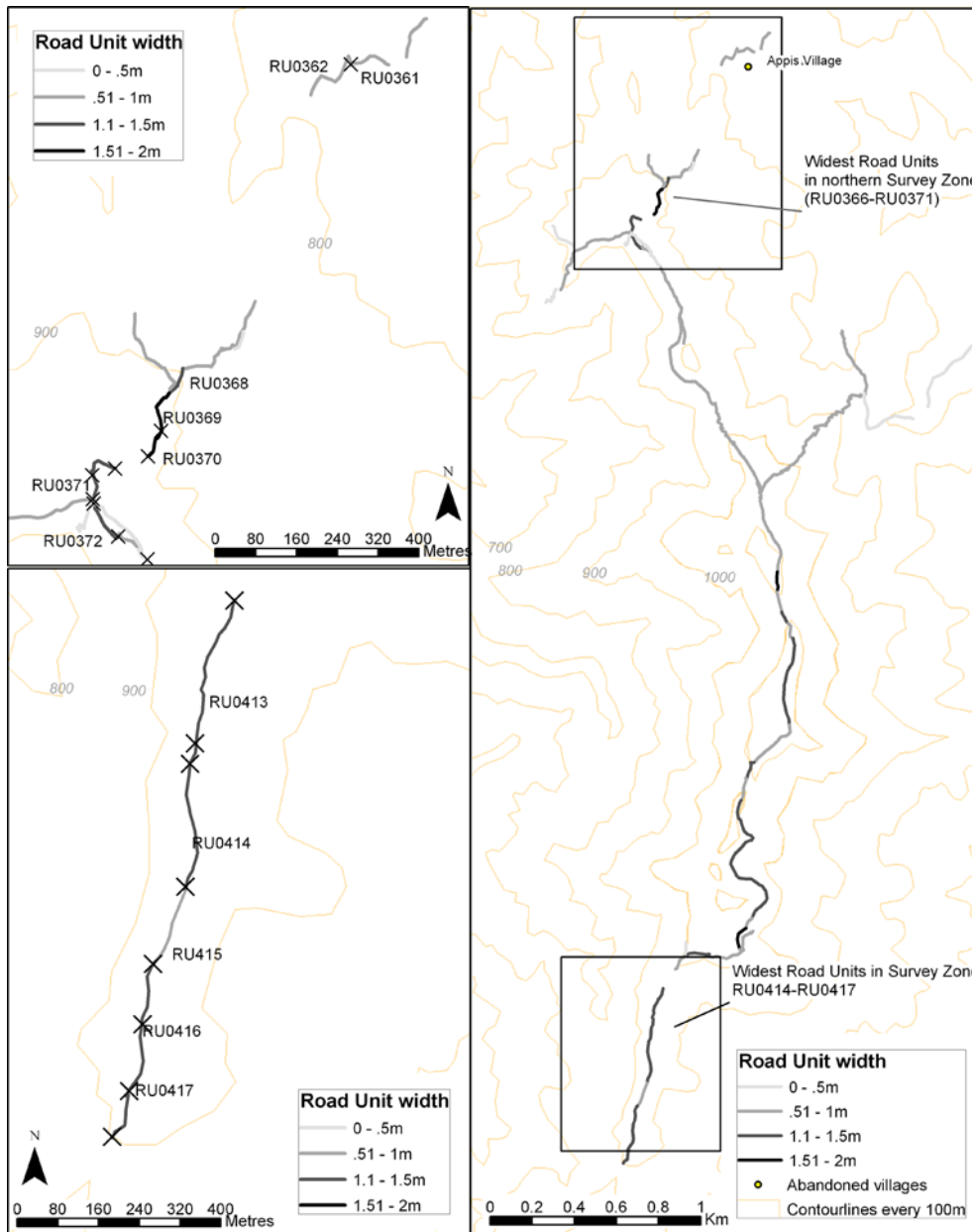


Figure 4.11: Road Units showing width and worn/cut bedrock.

The majority of Road Units with widths less than 1 metre are located in the northern section of the survey zone, while those located to the south appear to be predominantly between 1 and 1.6 metres in width. Road Units RU0366 to RU0372 are the widest units located in the northern section of the survey zone. As discussed previously there appears to be a relationship between width, path stability and their terraced structure. Road Units RU0361 and RU0362 are both directly associated with the village of Appis and are 1 metre wide. Other wide Road Units are located in the southernmost part of the survey area close to the

village of Palekhori. Road Unit RU0413 to RU0417 have widths that average 1.2 metres.

4.6.2 Structural features

Terracing paths is an intentional investment of time and labour. Worn bedrock and cut bedrock are structural features that may be related to the importance of certain paths over others. Worn bedrock and cut bedrock mean quite different things. In general, the degree to which bedrock on the surface of a path is worn is proportional to the frequency and length of time a path is used. When I accompanied an elderly man and his daughter to Ayios Giorkis from Askas in spring 2003, I was told that bedrock was cut on the paths near Ayios Giorkis to make the surface ‘flat’. Making the surface ‘flat’ increased the path’s surface stability. Bedrock cutting is related to the energy cost of paths. Presumably those paths not used frequently are less likely to be bedrock cut.

In many cases paths are worn and the bedrock is cut. These two categories are merged into the same structural feature in the North Palekhori Survey Zone because of the difficulty involved in differentiating between bedrock that is worn and that which is cut. Although ethnographic informants give accounts of cutting bedrock for paths, in many cases it is difficult to determine if bedrock is naturally fractured along the path because of use, or if the surface was artificially augmented.

Pronounced sections of path that show deeply cut bedrock such as Road Unit RU0412 and RU0413 are uncommon in the survey zone (Figure 4.12). These units are part of the ‘Place of Special Interest’ Palekhori Orinis *Argakia* (P018) located on a spur and designated a POSI due to the presence of pottery and cut bedrock. The bedrock was cut to provide a ‘lip’ of stone on the hill slope side of the path and therefore provided path stability similar to that of path terracing. Modern pottery was found on an agricultural terrace to the east of the path. This Modern period, unglazed storage jar is similar in appearance to the *kourellos* and is known ethnographically to store goods like olives and halloumi (Ionas 1998: 47).

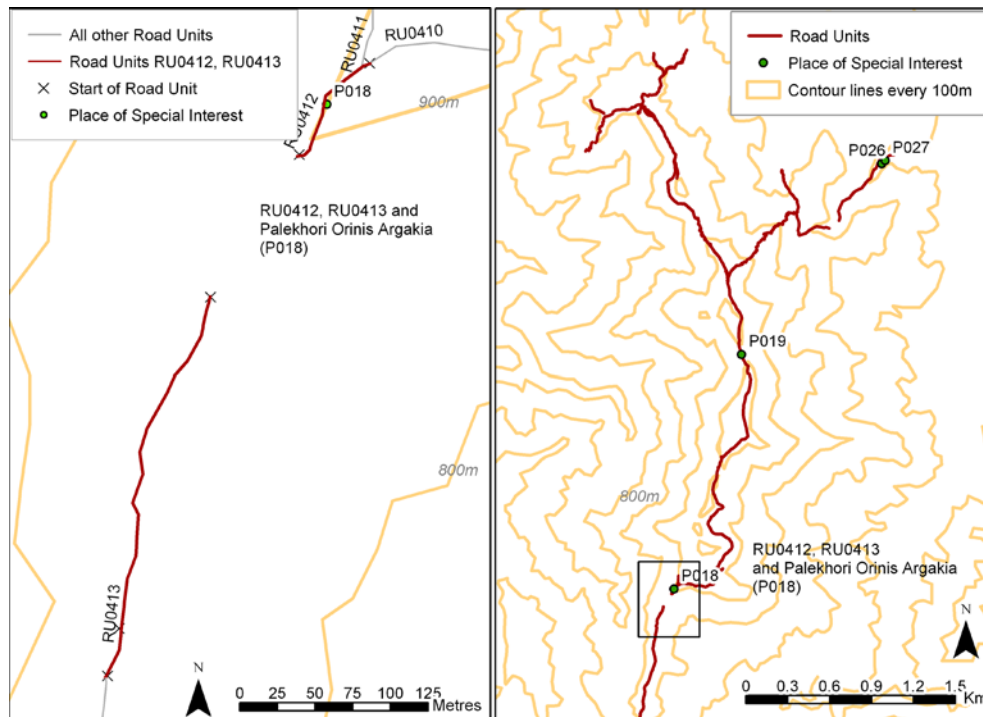


Figure 4.12: Bedrock worn and cut Road Unit RU0412, RU0413 and Palekhori Orinis Argakia (P018).

In areas where the width of Road Units is below .9 metres there is a greater probability that the path is eroded or unstable with bedrock cut or worn sections. The modification of bedrock surfaces is most common along spurs and ridges where the surface is unstable and bedrock is exposed. Therefore in most cases the width and presence of bedrock cut or worn sections is not enough to suggest the importance of certain paths over others. Data that include structural features such as terracing, cut and worn bedrock segments of path, and Road Unit width must be merged with information concerning junctions to assess adequately the overall importance of paths.

4.6.3 Intersections

Junctions and intersections are analysed as road elements that indicate the dominant direction of movement through the landscape. Intersections are areas where four or more roads or paths cross, bisecting movement and enabling travel in multiple directions. Junctions on the other hand are those elements of roads and paths where movement is merged or split. Junctions are formed through multiple

journeys and decisions. They provide information concerning the choices and directions that humans moved through the landscape.

The most complex intersection within the survey zone is called the ‘*Appis* intersection’ (Figure 4.12). This intersection is made up of five paths that diverge in four different directions at the northernmost end of a saddle where it joins a ridgeline. The complex topography facilitated the formation of this intersection of paths and routes of communication. The relationship between the saddle, the formation of this intersection and its role as a focal point for decision making is discussed more thoroughly in the ‘Stopping Places’ section of this chapter.

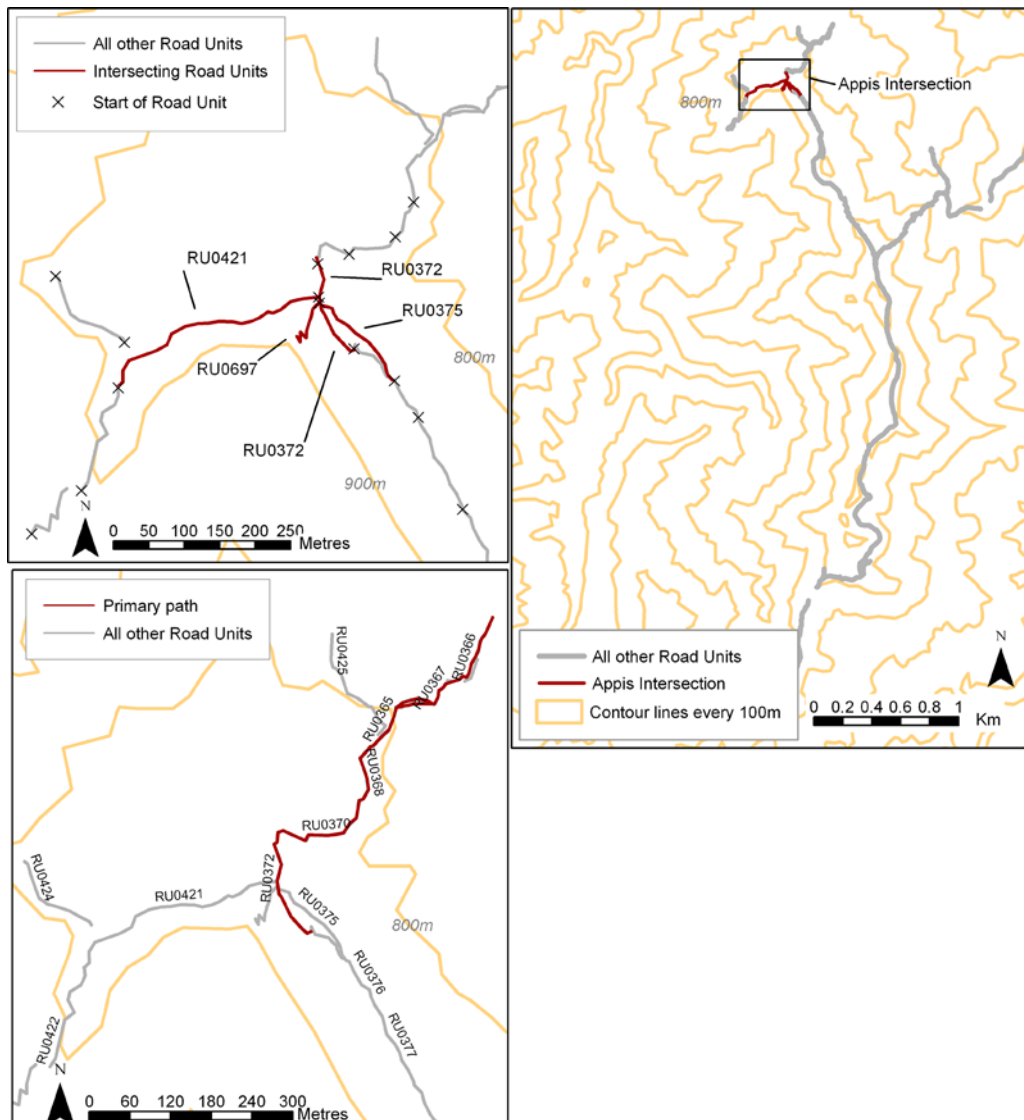


Figure 4.12: Appis intersection of RU421, RU372, RU0697 and RU375.

To aid in discussing the complexity of this intersection I have divided it into two different parts. The northernmost paths making up this intersection are RU0421 and RU0372 while RU0697, RU0375 and RU0372 make up the southernmost part of this intersection. It should be noted that RU0372 is a long Road Unit that starts along the saddle then diverges southeast along the ridgeline. It was not subdivided because its morphology did not change throughout the intersection.

The northernmost paths making up this intersection are RU0372 and RU0421 that diverge northeast and southwest respectively from the saddle following the contours of the ridge. The parallel course of these Road Units is quite striking. A thin line of stones separates RU0421 from RU0372 at the saddle junction. This line of stone is not terracing but instead appears to direct traffic travelling north along the saddle eastward towards the village of Appis or from Appis southwards to the saddle area. This construction and maintenance of this line of stones is likely related to the hunter's campfire located at the junction of RU0421 and RU0372.

The southernmost part of the intersection consists of RU0372, RU0375 and RU0697. Road Unit RU0375 follows the same course as RU0372 but travels along the apex of the saddle instead of following the contour line. Although this route may have been used for hunting prior to the use of shotguns, evidence from shotgun cartridges found along RU0375 suggests that this alternative route to RU0372 was constructed in the past fifty years when shotguns and plastic cartridges became popular in Cyprus. It is evident that this path continues to be used for hunting and may still be maintained by hunters.

Road Unit RU0697 is a path that branches southwest from the RU0372, RU0375 and RU0697 intersection. Though this path was not followed beyond the first Road Unit, it appears to use the zigzag technique of descending the steep mountain slope. This is likely the path that villagers from Askas refer to as the route that connected the villages of Appis and Ayios Giorkis.

The location of Road Units RU0421 and RU0372 mirror each other as they diverge from the saddle to run northeast and west along the ridgelines. There is no structural barrier to movement in either direction beyond a small line of stones that may imply or signal a more important route heading northeast/south. The width and stability of the individual paths making up this intersection suggest that the primary path is RU0421 and RU0372. When adjacent paths are included in the analysis of width and stability it becomes evident that RU0421, RU0697 and RU0375 are all secondary or 'feeder' paths while RU0366 to RU0371 form part of the primary path. Unfortunately, there are not enough data available to distinguish differences between these secondary units RU0425, RU0426, RU0366 to the east or RU0422-RU0424 to the west.

4.6.4 Junctions

Junctions affect the flow of movement, both reflecting the dominant directions of movement and also influencing future movement. There are few junctions in the North Palekhori Survey Zone. In total six paths branch off the main north-south path. The most complex network of junctions is located in the northern part of the Survey Zone in the locality of *Appis*.

The northernmost junction within the survey zone is found in the locality of *Muti tis Lajeris* and is composed of Road Units RU0401, RU0385 and RU0384. This junction is located at the ridge of a saddle. Figure 4.13 below shows the Muti tis Lajeris junction where RU0401, the previously discussed zigzagging ridgeline path, meets the main north-south path composed of RU0384, RU0385 and RU0386.

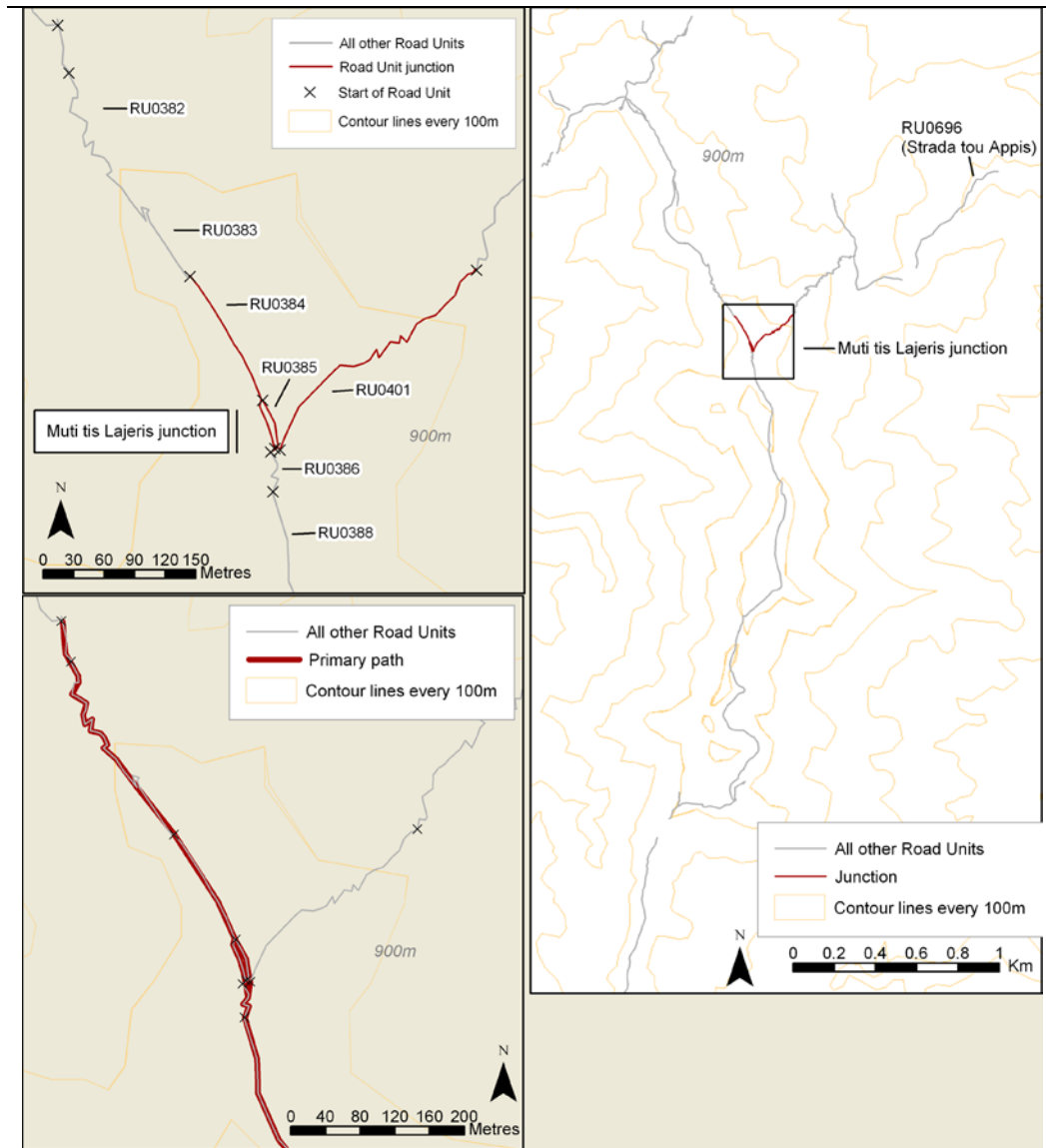


Figure 4.13: Junctions Muti tis Lajeris composed of RU0401, RU0385 and RU0384.

Units belonging to the main north-south path are wide with evidence of bedrock cut and worn sections, especially RU0382 and RU0385. These Road Units form the primary route of travel. Those who travelled up the spur from the valley bottom (from the northeast) to Road Unit RU0401 likely continued southwards along the wider path (RU0386). There is no evidence to suggest that traffic moved between RU0401 and RU0384. If travel was common between these paths then the sharp turn linking these paths would show evidence of modification to facilitate this traffic.

The path (RU0401) that branches off the main north-south route down the spur to the northeast connects at the base of the slope with ‘*Strada tou Appis*’. Only a

small segment of *Strada tou Appis* was located and surveyed (RU0695). Post-season reconnaissance survey of this path and the locality of *Lakxiaoos tou Ayios Yeorgios* resulted in a scattered picture of communication in the region. The path that branches at the base of the mountain (RU0399) was followed in an effort to locate the ruins of Ayios Georgios church shown on the cadastral plan. This path (RU0696) headed eastward through the locality of *Lakxiaoos tou Ayios Yeorgios* in the direction of the abandoned village of Ayios Nikolaos. Intensive pocket terracing, resin tapping and check dams characterise this steep river valley.

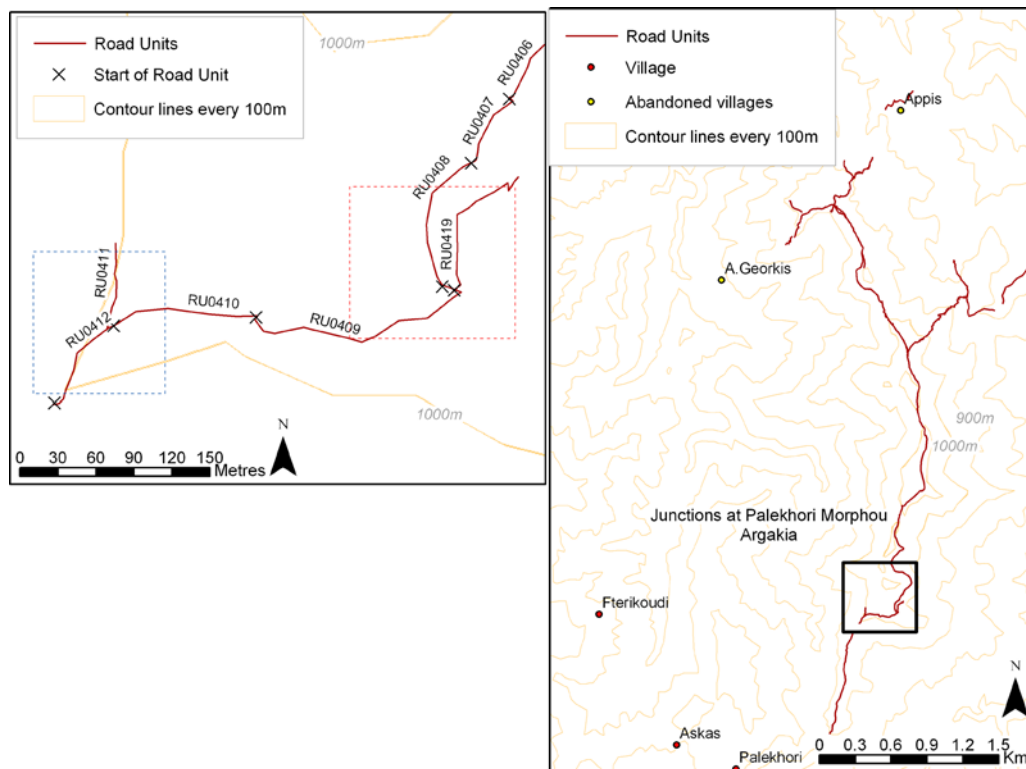


Figure 4.14: Junctions at Argakia locality and Road Unit width.

The southern half of the survey zone contains two junctions (Figure 4.14). The northernmost junction consists of RU0408, RU0409 and RU0419 (Figure 4.14: red box). The overall width and structural features of these Road Units do not differ significantly. Its structure, however, indicates that the intended direction of movement is between RU0419 and RU0409. Movement between RU0408 and RU0419 is more difficult as it requires a sharp turn to double back on itself. Thus, the form of the junction makes it clear that it was designed for merging or diverging to/from the main north-south path.

The southernmost junction consists of Road Unit RU0411 and RU0412 (Figure 4.15: blue box). The narrow and unstable nature of Road Unit RU0411 made it impossible to survey completely. The junction of RU0411 and RU0412 suggests that traffic was not intended to move between Road Unit RU0410 and RU0411. Instead, the morphology of the junction reflects movement either north or southwards between RU0411 and RU0412. The width of this path, its instability, and the junction form where it merges with RU0412, make it an unlikely choice for a primary route of travel. Structural terracing and severe topographical modification including bedrock cutting would have been necessary to make this path a primary route. There is no evidence of such features found in RU0411, despite abandoned terraces in the region suggesting past agricultural use of land.

The junctions discussed above represent the dominant direction travelled by the majority of path traffic. Obviously, individuals moved in other directions. Junction form, path width and structural features can only suggest the most commonly made and most prioritised decisions. The above discussion suggests that small 'feeder' paths merged with the main north-south path at ridgelines. There is sufficient evidence to propose that these paths either originated at or facilitated interaction between the abandoned villages of Appis, Ayios Nikolaos, Apliki and Ayios Giorkis. The north-south primary path that runs along the ridgeline from the vicinity of Palekhori to the locality of *Appis* is the main route of communication in the survey zone. By ascending to this ridgeline villagers could move northwards or southwards with ease regardless of the time of year. Villagers from Askas spoke about the seasonal nature of paths running along the Palekhori and Maroullena Rivers. Two villagers took me along one of the paths to the west of the survey zone that led from Askas Village to the abandoned settlement of Ayios Giorkis. We travelled along the spring/summer path that used part of the Palekhori River channel. They showed me where the winter path branched to the west of the river into the mountains thus avoiding the majority of the riverbed travel.

There is a relationship between villages, land use and communication routes in the North Palekhori Survey Zone. Paths located near the villages of Appis,

Maroullena and Palekhori have attributes that suggest that they were frequently used by large amounts of traffic. Both paths in Appis and those near Palekhori and Maroullena are wide and structurally terraced with bedrock cut and worn sections. In many cases they are located in areas where agricultural terracing is present. Thus, it is probable that these paths are related to the movement of people to and from their fields.

The whole north-south path from Appis to Palekhori was not always part of the daily experience of villagers living in the area. Instead, workers travelling to their fields only used certain segments of this route on a daily basis. These segments of path may be distinguished by their wide, stable surface necessary for the daily transport of tools and agricultural produce by pack animals such as donkeys.

Thus far I have confined discussion to the morphological features of individual Road Units. I have highlighted the structural differences, similarities and complexities of the paths that make up *Dhromos tou Appis* by analysing the paths in the North Palekhori Survey Zone as material culture. To address the more challenging aspects of communication and interaction it is necessary to look at the historical context and use of these paths. In the following section I place Road Unit location, morphology and structural features in their historical and environmental context.

4.7 Communication and settlements

A logical first step in understanding the function and use of paths in the North Palekhori Survey Zone is to look at the historical background of the villages in the region. Those villages within the vicinity of the survey zone include Appis, Ayios Nikolaos, Ayios Giorkis, Maroullena and Palekhori. All of these except Palekhori were abandoned between the sixteenth and seventeenth centuries (Grivaud 1998: 184-185; 2002: 55).

Palekhori Morphou *Appis* (P017) is an abandoned village in the northernmost part of the survey zone located near Archangelos Church. Today the remains of the village consist of a series of seven abandoned stone structures. According to

Grivaud the Cyprus Department of Antiquities studied this village and concluded that it, along with the village of Ayios Nikolaos, dates from the Medieval to later periods (Grivaud 2002: 53).

It is difficult to determine if these villages were separate fiefs during the Frankish and Venetian periods. Grivaud (2002: 37-38) proposes that the fief of Palekhori included the settlement of Maroullena by 1237 because the village is not mentioned separately in documents past this period. Documents suggest that from 1313 to the mid-fifteenth century the upper Maroullena Valley was controlled by the Order of St. John (Grivaud 2002: 37). It is likely that at this time the settlements of Appis, Ayios Giorkis and Ayios Nikolaos were also ruled through Palekhori.

The village of Appis is directly associated with three Road Units (Figure 4.15). Road building and modern cultivation limited the preservation of paths in the abandoned village of Appis. These three surveyed Road Units are similar in structure to those located throughout the survey area. The association of the path and the village provides evidence that either the village of Appis was not completely abandoned in the period of 1600 to 1700, or the path dates to the period before the settlement was abandoned.

Structures found within the village of Appis were used as *mandres* within the last 100 years. It is possible that it became a temporary settlement for goat herders following its initial abandonment. Paths used by goats, however, have an eroded and less patterned appearance. Road Units RU0361 and RU0362, are both stable, and the latter has been structurally terraced as well. The stability and terracing of these two Road Units supports the hypothesis that this path fell out of use before the area was used for goats. Bulldozing and road building in the vicinity of Archangelos Church has destroyed part of this path. This recent activity dates from the mid to late twentieth century and post-dates the use of the path. I believe that it can be safely postulated that RU0361 and RU0362 are part of a path that dates to the pre-1700 abandonment period.

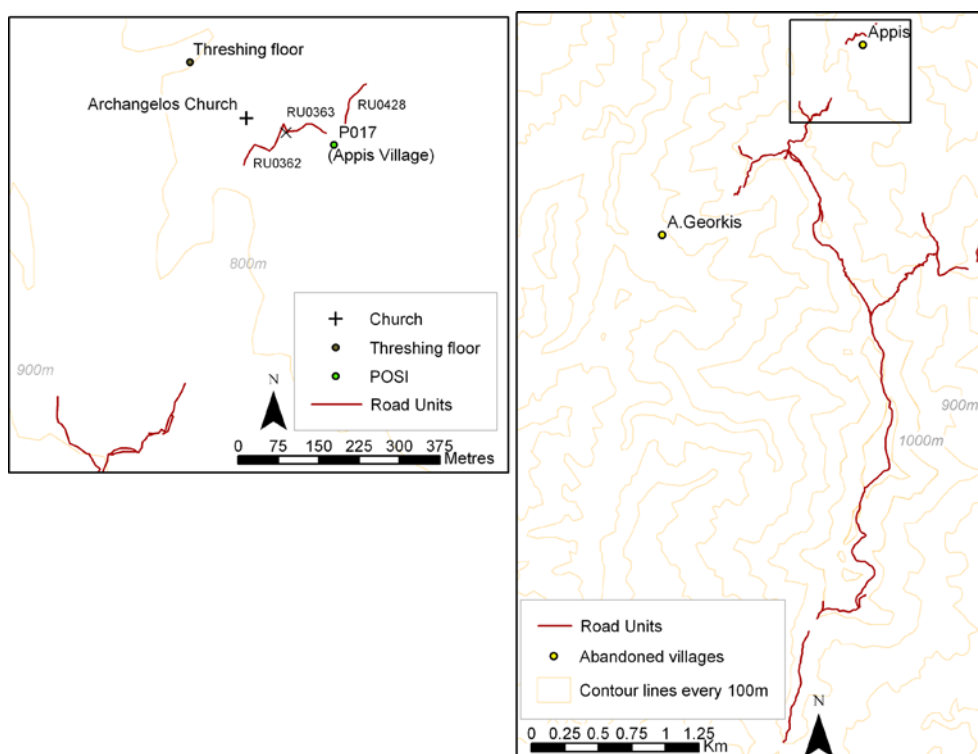


Figure 4.15: Appis Village and associated RU0361, RU0362.

There is evidence for grain processing near Appis where a threshing floor is mapped on a 1924 cadastral plan. Appis is the only known village in the survey zone with an associated threshing floor. If Appis was a settlement that belonged to the fief of Palekhori as proposed, then grain cultivated and threshed at Appis must have been transported to Palekhori for milling via *Dhromos tou Appis*. The plentiful water supply at Palekhori made it a year round place for milling grain as is evident from the two undated flourmills of Mylonas and Xinaris found ruined in Palekhori today (Grivaud 2002: 26; Sophocleous 2002: 335).

The village of Palekhori was a focal point for travel during the Frankish and Venetian period when movement between villages and estate land brought people to Palekhori to use amenities such as ovens and mills (Grivaud 2002: 35, 55). In the sixteenth and seventeenth centuries villages were abandoned and their populations moved to Palekhori (Grivaud 2002: 55). Cultivation of village fields was maintained throughout this period. Thus during the sixteenth and seventeenth century a large proportion of the population of Palekhori was involved in commuting to and from their fields on a daily basis (Christodoulou 1959: 86;

Given 2000: 221; Halstad 1987: 84). Evidence for this connection between abandoned villages and fields belonging to these villages is preserved in locality names on cadastral plans. The best example of this is the village locality of *Appis* located in the northernmost part of the survey zone (Figure 4.16).

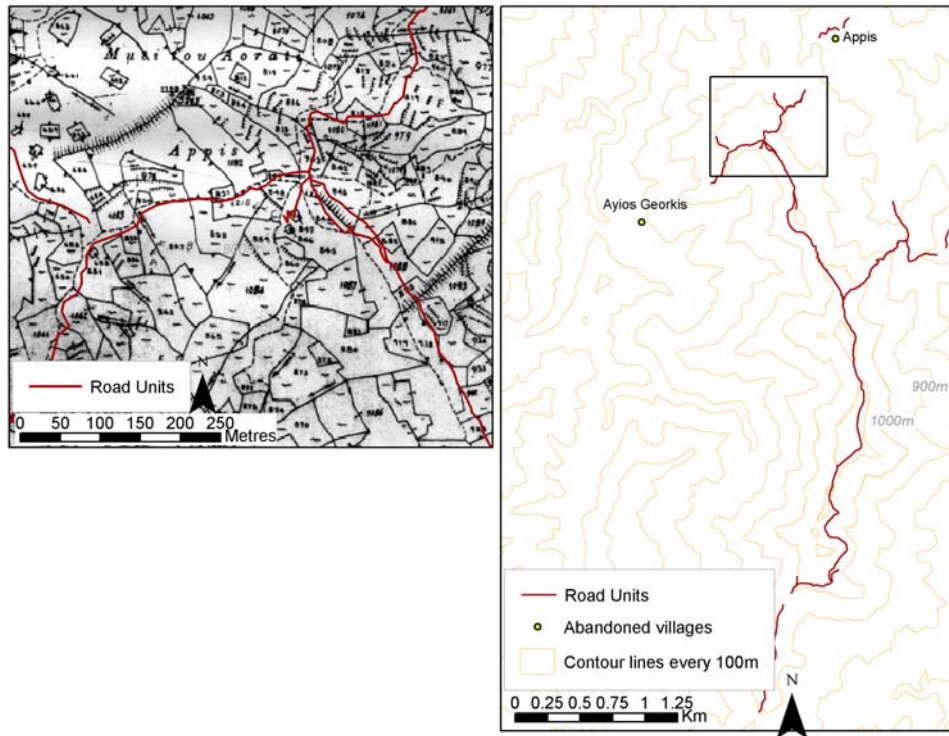


Figure 4.16: Cadastral plan of *Appis* locality with associated Road Units.

There is still a tie between the village of Palekhori and the land in *Appis*. People from Palekhori own gardens and summer homes in the *Appis* area that they visit on weekends and holidays. This link was re-iterated again and again throughout my 2003 field research by both old and young villagers from Palekhori and Askas; the region of *Appis* belonged to Palekhori while the area of the abandoned village of Ayios Giorkis belonged to Askas.

The association between locality names and village territory may also be applied to the locality name of *Maroullena*. The village itself is located one kilometre to the south of where its locality name is found on the cadastral plan. It is likely that this locality name refers to land cultivated by the villagers of Maroullena prior to its abandonment.

The North Palekhori Survey Zone is rich in both flora and faunal resources. Paths provide access to land for hunting, collecting plant resources and harvesting wood. The 1318 records from Psimolophou Estate, located to the north of the survey area, include the costing of axes for digging forest roads to carry building wood (Richards 1947). This account implies that the lord of the fief undertook the construction of some roads and paths. These estate records make it obvious that building wood was a valuable resource. In 1318 Mitranus Zoumas was paid 60 Bezants for watching over Psimolophou Estate building wood in the forest (Richards 1947). It is difficult to ascertain whether or not the construction of roads and paths always came under the jurisdiction of the estate or if the decision was dependent on the value of the resources extracted. Implications of road construction and the harvesting of grapes during the fall are discussed in a later section of this chapter. Smaller resource extraction such as the hunting of hare and partridge is a common practice along the paths in the survey zone. Terebinth and ladanum are available within close proximity to the paths and were presumably collected for local village use and the fief of Palekhori. Trips to and from fields probably included the daily tasks of hunting and gathering such resources.

The abandonment of the villages of Appis, Ayios Nikolaos, Ayios Giorkis and Maroullena and the consolidation of their remaining populations in Palekhori had profound effects on communication. Prior to the sixteenth century villagers travelled relatively short distances to and from their fields on a daily basis. Travel to Palekhori probably took place occasionally to pay taxes, use the communal facilities provided by the lord, attend markets and celebrate saint's days. Once the population of individual villages was relocated in Palekhori, farmers must have spent much more time commuting to their fields. Thus, the sixteenth to seventeenth centuries was a period of greater mobility in the region of the North Palekhori Survey Zone. Paths that were previously used seasonally now became part of their daily commute. It is likely that during this period many new paths had to be built and old paths renovated. With increased traffic on arterial routes stability became more important. Paths had to be wider and more stable. The need for greater path stability and width prompted villagers to extend the terracing of paths.

A good example of this process can be examined in the northernmost extent of *Dhromos tou Appis* near the locality of Appis, south of the *Muti tis Lajeris* junction. The widest and most stable paths are located in this area. I suggest that the villagers of Appis built these stable, wide and terraced paths for the daily travel from their village of Appis to their fields in the locality of *Appis*. Initially, the maintenance of these paths was probably seasonal. The abandonment of the village of Appis caused the pattern of movement along *Dhromos tou Appis* to change. It was only after the abandonment of Appis village in the seventeenth and eighteenth centuries that it became necessary to maintain the paths more intensively through widening and terracing.

This more intense use of the path by villagers of Appis and Ayios Nikolaos also required regular repair. It is logical to suggest that terracing of paths was a communal effort on behalf of these two villages. Paths that were used daily were repaired daily as part of the routine of tending. Tending may have included the removal of misplaced stones and branches fallen onto the path surface. Terracing of paths like the terracing of fields took place in the quieter times of the year like winter or summer (Wagstaff 1992: 158). The more intensive repair work such as the terracing and bedrock cutting probably occurred in the spring to repair areas washed out during the heavy winter rains. It was in the estate's best interest to keep these paths well maintained and free of obstructions, especially during the grape harvest when the traffic on the paths to and from the village territories was greater and the loads more valuable.

At any one time the path network within the North Palekhori Survey Zone was composed of multiple communities. Travellers included a variety of people from different villages both within and out with the Pitsilia area. Some of these travellers shared the experience of moving daily to and from their fields, while other smaller communities shared the experience of moving weekly, monthly or seasonally along the path for church celebrations, markets and weddings. Communities and villages are not composed of a homogenous population all having similar interests and motivations. These communities were always changing. Paths within this survey zone, as well as the Mandres and Akamas

Survey zones, may represent the distinct interests and motivations of individuals within these communities rather than the community as a whole.

In Palekhori certain events acted as catalysts to changing settlement patterns and movement. When the villages surrounding Palekhori were abandoned and the population consolidated in Palekhori Village in the late Venetian and early Ottoman period, interaction taking place along *Dhromos tou Appis* changed. Traffic on the path increased as villagers commuted long distances to estate lands with a new community of people. The renovation and expansion of churches within Palekhori during this period suggests that it was a period of prosperity when the religious community expanded (Grivaud 2002: 56-57).

4.8 Stopping places?

There is a relationship between the rhythm with which people move through the landscape, how they move and why they stop. In this section I briefly discuss this movement and the possible relationship between the material culture found associated with the Road Units, the topography and the tasks of individuals travelling the route. Tasks carried out influenced how people moved and where and why they stopped along the path.

Because the North Palekhori Survey Zone is very steep and paths often precariously cling to the sides of the mountain, there are few places along *Dhromos tou Appis* that are wide or stable enough to stop and rest particularly if travelling with a loaded animal. Within the survey zone saddles stand out as unique parts of the topographic landscape where distinct activities take place.

Road Units RU0372-RU0375 and RU0384-RU0386, RU0401 are located along saddles and mark two of the few places along the main north-south route that are wide enough for travellers to stop. These areas were important places for both travellers and their donkeys laden with grape juice, timber, grain, or baskets of grapes to rest. For long journeys places to eat, readjust and reposition loads were important. Within the North Palekhori Survey Zone these activities occurred mainly at saddles. Saddles are places where limited slope, surface stability and

width promote alternative choices of movement. Evidence of different activities taking place at saddles includes the presence of intersections, junctions and pottery concentrations. A saddle made up of RU0372-RU0377 is shown below (Figure 4.17).

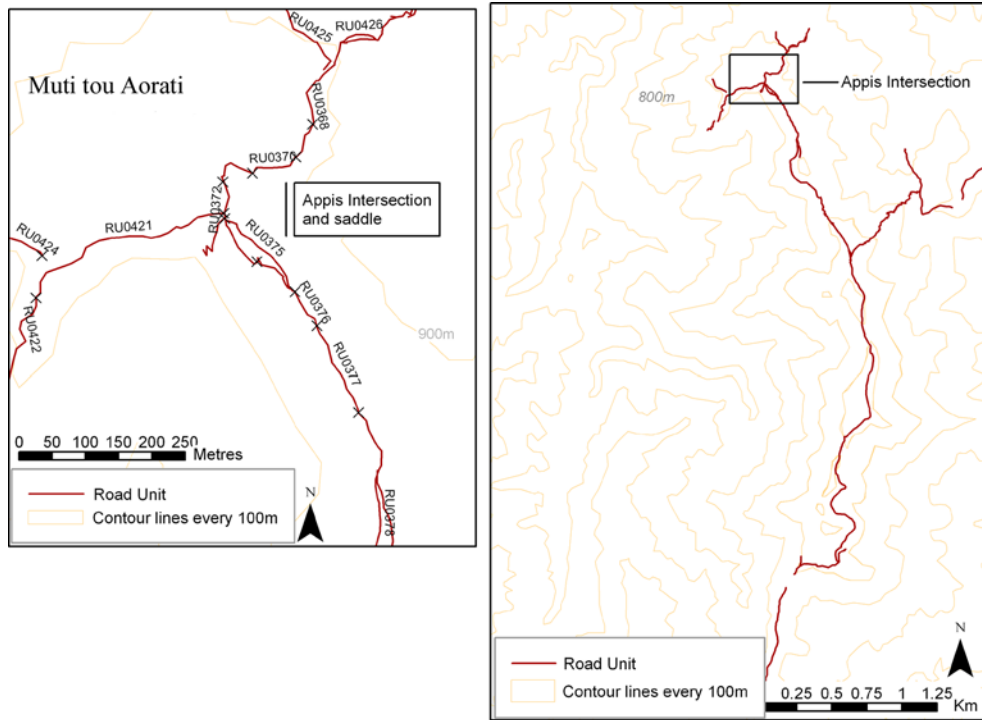


Figure 4.17: *Appis* intersection and associated saddle RU0375-RU0377.

With a total length of 385 metres and a width of 20 metres, this saddle marks the most stable and widest portion of the main north-south communication route. The northernmost end of this saddle is dominated by the peak of *Muti tou Aorati*. Resting, camping and meeting were likely common activities at this location in the past. The intersection of RU0372, RU0375, RU0421 and RU0697 marks the intersection of communication routes along *Dhromos tou Appis* (Figure 4.13). While junctions are located in the survey zone the association of the saddle and the intersection indicate that more complex activities took place here. It plays a role in local patterns of interaction by offering options for movement in a place conducive to decision making. Moreover, the presence of a campfire in close proximity to the intersection further supports the lasting importance of the saddle and intersection in communication and interaction.

The saddle associated with branching Road Unit RU0401 was discussed previously (Figure 4.14). This saddle follows the spur-line and has a width of 20 metres for approximately 130 metres. Despite the lack of material evidence for stopping or camping at this saddle, the presence of the junction is indicative that this area was a place of decision making and pausing.

One saddle was unique enough to be classified as a ‘Place of Special Interest’. Palekhori Orinis *Akrotiros* (P019) is composed of RU0390 and RU0391. The path crossing the saddle is narrow, rocky and prone to strong winds. The saddle itself measures 150 metres long with a width of approximately 20 metres. Road Unit RU0390 and RU0391 are the only two in the survey area where significant quantities of pottery (12 sherds) were located along a path (Figure 4.18 and 4.19). Initially, the cadastral plan appeared to show a spring close by, but further investigation within the steep landscape demonstrated that the spring is too far away to be included in the explanation for activity along the ridge.

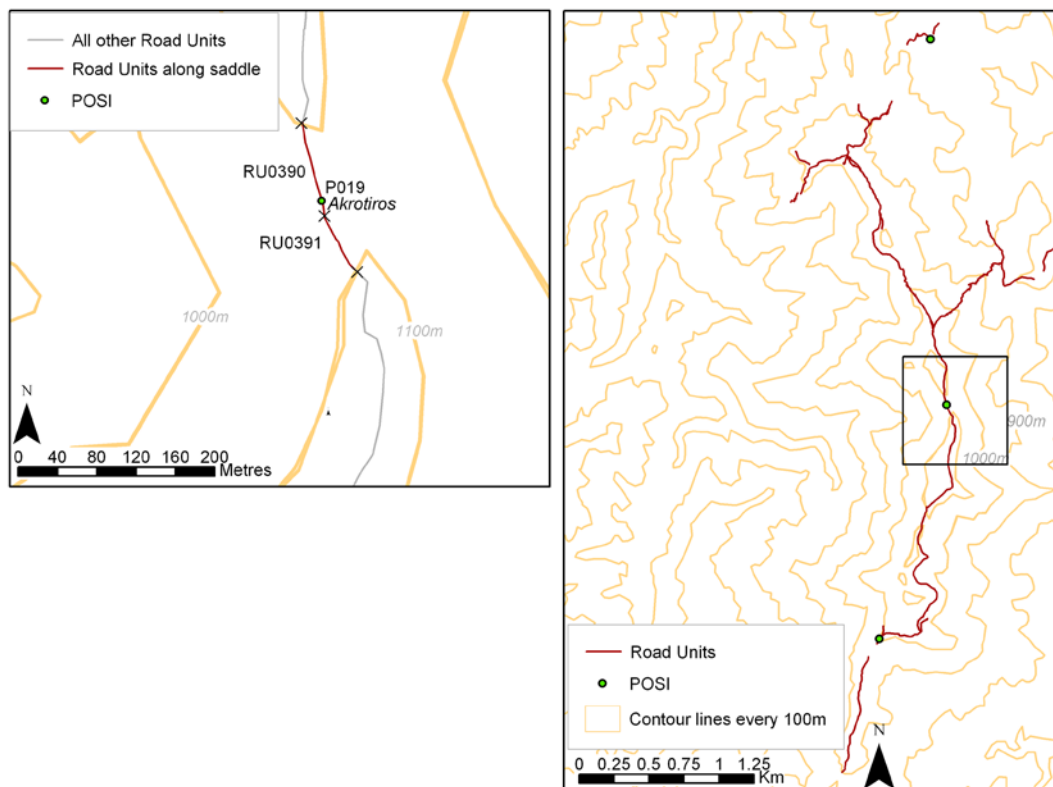


Figure 4.18: Palekhori Orinis Akrotiros.

The form and thickness of the pottery (Figure 4.19) is suggestive of the *koumna* or the common jar and the storage pot or *kourellos* (Ionas 1998: 46-47). This pottery

is dated to the Medieval-Modern period. Storage vessels such as the *koumna* and *kourellos* are common in mountainous regions and often vary in size. These small pots are multipurpose and could be used for the short term storage of water as individuals travelled to and from their fields or for other products like halloumi and olives.

It is unlikely that the pottery fragments located on the saddle are remnants from the transportation of wine or grape juice. In Greece, there are accounts of grape juice and wine transported by skin bag. The weight, bulk and value of such resources made it too dangerous and awkward to transport by pottery container (Forbes 1997: 102).



Figure 4.19: Pottery from storage vessel on saddle at Palekhori Orinis *Akrotiros* (P019).

There is no one activity that caused pots to break at this saddle. A variety of activities took place alongside each other at Palekhori Orinis *Akrotiros*. The width of the saddle made it one of the only places where donkeys laden with goods could pass each other or stop and have their loads readjusted. The saddle was part of the daily routine of moving and interacting. It was a place to drink water from water vessels, rest, consume food, visit with friends, readjust animal harnesses and pack loads.

Views from paths in the North Palekhori Survey Zone are dramatic. Road Units RU0372, RU0385 and RU0413 are noted as having spectacular views in all directions. Material evidence for watchtowers or other related surveillance materials have not been found, but they are known in other high elevation regions. Both the view and the sound from villages such as church bells, or *tsimantra* in the Ottoman period, are easily heard from the path. Such sounds and views likely helped travellers using the path to orient themselves in the surrounding landscape.

The most frequent and consistent movement in the North Palekhori landscape was the daily travel to and from agricultural fields (Given 2000: 221). In earlier periods when land ownership was less fragmented farmers cultivated fields within their village territory. In the British Colonial period these fragmented holdings were so dispersed that farmers had to travel very long ways outside of their village territory (Christodoulou 1959: 85-86; Given 2000: 221).

The fragmentation of land holdings during the Ottoman period influenced how people moved and interacted with each other. Communication routes connecting villages to their fields were extended and expanded to incorporate smaller paths to provide access to the ever more dispersed fields. Where topography was severe and there were fewer options for movement, landowners had to invest more labour into the construction of paths. Bedrock cut features and terracing are prominent structural features in these areas. These construction techniques had the dual purpose of stabilising paths to accommodate increased traffic while ensuring that farmers had access routes to their dispersed land. In many cases paths were constructed through other peoples' privately owned land (Christodoulou 1959: 84-85).

The division of land into privately owned plots changed the nature of communication in the North Palekhori Survey Zone. Movement between fragmented land holdings reflected the change to private land ownership. People who in the past worked together on adjacent or communal land now worked separately on dispersed plots of privately owned land. During this period the

community of people who used these paths to move from village to cultivate land changed. As schedules and travel changed new communities of travellers were established while older communities either dissolved or were forced to change.

4.9 Rethinking high elevation interaction

There is a tendency to assume that topography is the primary factor that determines the location and style of paths, especially in environments where the topography is challenging. Although topography influences the form and location of paths, even in the most constrained situation people meet topographical challenges by making individual choices. The best examples of this are the switchbacking paths. As discussed, paths that ascend spurs and ridgelines break and reduce mountain slope through switchbacks. This technique reduces the exertion necessary to climb the mountain. The frequency and length of individual switchbacks is related to many other factors such as method of transport, slope and land use.

Path form in the North Palekhori Survey Zone is not devoid of stylistic considerations and personal preferences. Those features of paths that appear practical in many cases were influenced by other factors. A good example of this is the presence of structurally terraced and bedrock cut segments of path. Creating a stable path surface was achieved through a variety of techniques. In some cases structural terracing was used while in other cases the bedrock was modified and the path widened instead. Cutting the bedrock to produce similar effects to that of structural terracing took extensive knowledge of path building and design. The use of structural terracing is not a consistent feature of paths in the survey zone. Structurally terraced sections of path sometimes reached heights of three metres while others consisted of a simple line of stones. Although stability was the end result of path terracing, terracing was also an opportunity for individuals or village groups to show off their talents in masonry and design. Path construction served the aim of facilitating communication and interaction but the choice of how to go about this construction was influenced by personal choice.

The social aspect of travel also influenced how people moved or wanted to move through the landscape. Social encounters punctuated the landscape. Communities of people were bound together by common movement along the paths. The path network in the North Palekhori Survey Zone was the basis for a distinct ever-changing community. Travel to partake in celebrations such as the local *paniyiri*, marriages or name days transformed paths into festive places to meet friends and family. Common destinations and tasks bound individuals together into a network of interaction that took place along the path. Saddle areas were stopping and meeting places. Material evidence in the form of pottery (P019) and modern campfires indicate that even today saddles are chosen areas for stopping and meeting people.

Communication within the North Palekhori survey zone was closely linked to interaction between villages in the region. Continual negotiation of space and changing interaction through time created these paths. Land use and political administration played roles in how this network was constructed and maintained. While it is uncertain how much control the Medieval period lords of the fief of Palekhori and Maroullena asserted over the neighbouring villages, one can assume that their rule greatly influenced the nature of interaction.

Paths were created, modified and extended as interaction expanded and changed. One of the most notable periods of change took place during the late Medieval-early Ottoman period when population was consolidated in the village of Palekhori. The morphology of paths was modified, maintained and the communication network expanded to accommodate the changing nature of traffic between Palekhori and village fields. Periods of change as illustrated in this chapter demonstrate the link between movement, interaction, settlement and land use. Similar patterns of interaction are explored in the Mandres Survey Zone where roads and path are linked to land use, movement and colonisation.

5 The Mandres Survey Zone

This chapter benefits from the rich survey data collected by the Troodos Archaeological and Environmental Survey Project (TAESP) and research completed by Sollars (2005). When these landscape and settlement data are brought together with those collected through the intensive survey of communication routes and archival research it is possible to address:

- Interaction between plains, foothills and mountains
- The link between road/path morphology and topography
- The role that communication routes play in the study and reinterpretation of seasonal settlements
- How archival data can be brought together in connection with archaeology to investigate postcolonial issues
- How routes of communication are used as a medium for control and resistance.

Data within this chapter are divided into three main sections: plains, foothills and mountains. Some more general themes arising from these sections, including path morphology, colonisation, resistance and British Colonial road-building policy, are addressed in Chapter 7.

The Mandres Survey Zone (Figure 5.1) ranges from 150 to 600 metres in elevation transcending the boundary between plains, foothills and State Forest. The border of the survey zone lies to the south of Nikitari village (located on the top right of the map) then runs west to the area just beyond the village of Kato Koutraphas *Mandres*. The southernmost limit of the survey zone runs to the north of Ayios Theodoros Village (located to the bottom left of the map) to the west then eastward to the slopes of Dhia Muti.

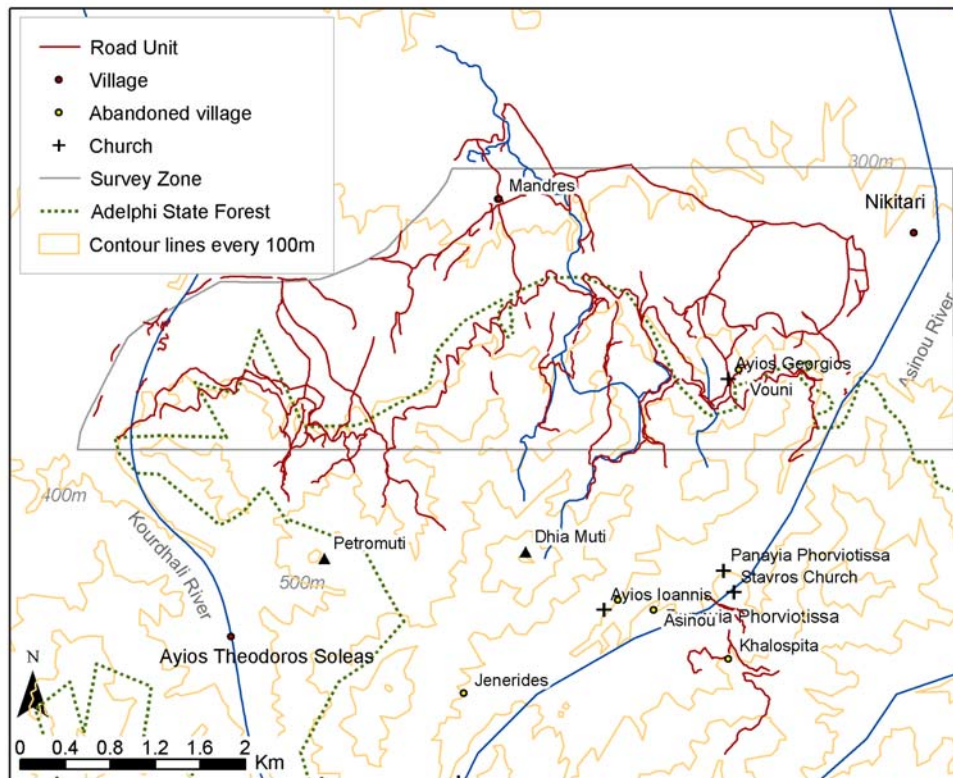


Figure 5.1 Mandres Survey Zone showing Road Units, churches, abandoned villages and settlements relevant to this chapter.

Transect and block survey took place throughout the survey zone from the flat plains around the villages of Kato Koutraphas *Mandres*, Koutraphas and Nikitari southwards into the grassy foothills and finally into the mountains and deep river valleys of the Adelphi State Forest. In all, a total of 152 Transect Units were surveyed over five transect lines. These transects were placed every 500 metres along the northing line using the UTM grid. Survey by transect was not always possible on the plains where there was dense cultivation. In some circumstances transects were moved to the nearest point where survey was possible or abandoned. Two hundred and sixty-two Road Units were recorded through the intensive block survey of those roads and paths located through transect and reconnaissance survey.

The morphology of the recorded roads and paths reflects the diverse environment and cultural circumstances in which they were constructed. The land use and settlement history of the region helps to establish a picture of the interaction that took place throughout this varied landscape.

Interpretation of communication routes within the Mandres Survey Zone relies heavily upon data collected by the Troodos Archaeological and Environmental Survey Project (TAESP). These data consist mainly of settlement and land use evidence. Interpretation brings together secondary historical sources that consist mainly of village and church history while archival data provide a rich picture of British Colonial history relevant to road survey in the survey zone.

5.1 Landscape history

This historic and archaeological background to the survey zone provides context for the presentation and analysis of Road Unit data. Ethnographic information collected from villagers through both the TAESP project and my own field research is used throughout this chapter. In some cases this information contradicts archaeological and historical data whilst in all instances it provides essential information concerning resource use, interaction and the experience of living in the survey zone. This archaeological, historic and ethnographic background is presented by topographic area, starting with the plains to the north working southward into the foothills and mountains. The regional geology and resource use is included within this landscape history section because they play an important role in the location and morphology of roads and paths while influencing the interaction that takes place within and between these topographic zones.

5.1.1 Plains

In 2001 and 2003 I participated in surveying the plains around the abandoned settlement of Kato Koutraphas *Mandres* as part of the TAESP project. One of the goals of this survey was to put the abandoned settlement into context while investigating settlement patterns on the plains. A team of specialists investigated the abandoned settlement of Kato Koutraphas *Mandres* to understand more about building architecture, its use and subsequent abandonment. Throughout this process ethnographic information was collected from local Cypriots who knew the village's more recent history.

The earliest evidence for occupation in the Mandres Survey Zone is provided by pottery collected in the vicinity of Kato Koutraphas *Mandres*. Pottery dating to the Geometric, Hellenistic and Roman periods was collected by TAESP in 2001 (Gibson 2001). Additional material including some Late Bronze Age and Roman period pottery was collected from the plains to the northeast near the village of Kato Koutraphas, located just outside the Mandres Survey Zone (Given *et al.* 2003: 2-15).

TAESP's standing building survey of the settlement of Kato Koutraphas *Mandres* concluded that the village was composed of a main nucleated settlement surrounded by outlying structures (James 2001; Ireland 2002). The structures in the settlement date mainly to the early-mid twentieth century. Settlement outliers are described by informants as the houses of shepherds who lived year round in the village (Kostas Benaki interviewed by Given 2001).

Ionas (1988: 20) and Given (2000: 224) agree that the standing structures of Kato Koutraphas *Mandres* are part of a seasonal settlement that was used by the people from the villages of Ayios Theodoros and Galata. They suggest that these mountain villagers came to the plains to cultivate grain. The 1920 village cadastral plan of Kato Koutraphas *Mandres* shows 42 threshing floors in the village. Plough activity destroyed many of these threshing floors. Only 17 of 42 threshing floors were located and recorded by the TAESP project (Given 2000: 224; Ireland 2002). Interaction between the village of Ayios Theodoros and Kato Koutraphas *Mandres* is discussed with reference to Road Unit data in Section 5.2.

The village of Nikitari is located on the plains to the northeast of the survey zone at the foot of the Asinou River. Interaction between this village and those up the Asinou River Valley in the Adelphi Forest is known ethnographically. I suggest that this communication originated in the Medieval or pre-Medieval time period.

Two *francomati* are listed in Nikitari in the Venetian *pratico* of 1565. When the British census was completed in 1881 the village population had grown to 61 (Grivaud 1998: 202, 469-470). Unlike the abandoned villages of Kato Koutraphas

Mandres or Nikitari *Asinou* that are discussed later, documents suggest that the village of Nikitari was occupied consistently for at least the past 440 years.

Systematic survey completed by Sollars (Unpublished PhD thesis, 2005) located threshing floors shown on a cadastral plan (XXXVIII-40) of Nikitari village. A row of three threshing floors at Nikitari *Konstantoudhaes*, to the southeast of Nikitari Village, implies that grain was grown and harvested within the vicinity of the village. Ethnographic information collected by the TAESP project suggests that in the nineteenth and some of the twentieth century Nikitari was a seasonal settlement where individuals from a variety of villages came to grow grain and plant gardens. These villages listed by informants include Kakopetria, Sina Oros, Galata, Kalia and people of the Solea Valley (Christos Ioannou; Vasiliki Theodoulou; Theodoulos Theodoulou, interviewed by Hadjianastassi, August 2003).

British Colonial communication routes cross the westernmost part of the plains. Road Units surveyed as part of these communication routes include one of the earliest British Colonial roads built on the island in addition to the British constructed Cyprus Government Railway. Good preservation of the surface of these roads coupled with rich archival documentation on British Colonial roads and road policy assisted in the interpretation of Road Unit data. The historical and social context under which British Colonial roads were constructed is discussed thoroughly in Chapter 7. The historical background specific to the British Colonial roads within the survey zone is discussed in depth within Section 5.2.

The Cyprus Government Railway was constructed in 1904 to link the cities of Nicosia and Famagusta (Luke and Jardine 1920: 184). It was then extended southwest to Morphou in 1907 and onwards to the village of Evrychou in June 1915 (1920: 184). In the same year a branch line was constructed to link Skouriotissa copper mine, located northwest of the survey zone, to the sea at Karavostasi (Luke and Jardine 1920: 184; Storrs and O'Brien 1930: 98). In 1912 the Cyprus rail system was transporting 130,000 passengers and 30,000 tons of freight a year (Lukach and Jardine 1913: 179).

The railway had a huge impact on resource extraction in the survey zone. Timber and grain were the main freight transported from stations in the villages of Evrychou (6 km) and Phlasou (2.5 km) located to the southwest of the survey zone. Consignments of grain and firewood for British troops in the Middle East increased the traffic of fuel through the survey zone (Turner 1979: 106). In 1918-19 “Evrykhou itself loaded 7270 tons of firewood...with 3290 tons of timber” (Turner 1979: 106). Much of this timber came from the Troodos and Adelphi Forests. The relationship between the railway and associated communication routes such as forest extraction roads and paths is discussed in the ‘Plains’ data section of this chapter. The section of rail that ran through the survey zone was closed in 1925 when forest extraction was reduced and the tithe on cereals was abolished.

Prior to the 1926 Tithe Abolition Bill, tithes taken in kind placed a large strain on transportation networks such as the railway. Abolishing the tithe was necessary to protect cereal farmers from the falling world market. Putting an end to tithes on cereals such as wheat, barley, oats and rye had drastic effects on communication routes throughout Cyprus (Georghallides 1979: 314, 363).

5.1.2 Foothills

The foothills of the Mandres Survey Zone are characterised by open forest and rolling hills. Abandoned settlements and individual structures were recorded by the TAESP project as well as through independent road survey. Road survey uncovered an interesting relationship between communication routes, abandoned structures and resource extraction in the foothills. Evidence for this relationship is explored more thoroughly in Section 5.1.3 of this chapter.

One abandoned village located in the transitional zone between the plains and the mountains is Nikitari *Vouni*. This abandoned settlement is composed of at least 10 structures including the church of Ayios Georgios. It was dated to the Medieval-Modern period from pottery collected through the TAESP project (Sollars and Keehn 2002). Terracing was recorded on the hillslope to the south of the village while large olive trees and mospilou were found on the spur to the north of the

settlement. The village of Nikitari *Vouni* is ideally situated for the exploitation of resources from either the plains or the forest, while the immediate environment is able to support a rich variety of resources. Interestingly, a single goat fold is the only structure shown on cadastral maps of the area. It is evident from the absence of the village on the cadastral plans and the preservation of the settlement ruins that the village was abandoned prior to cadastral survey.

Three kilometres to the west of Nikitari *Vouni* are two multi-roomed structures that were recorded as 'Places of Special Interest'. Ayios Theodoros *Pano Atsa* (P020) and Ayios Theodoros *Palloura* (P021) were investigated in conjunction with TAESP. Both structures are known as *mandres* by the villagers of Ayios Theodoros (Chrysostomos Georgiou interviewed by Hadjianastassi 2001). Ayios Theodoros *Pano Atsa* (P020) is composed of three large rooms with walls made of stone and mud brick and chinked with tile. The structure is well made without an associated enclosure.

Ayios Theodoros *Palloura* is located less than one kilometre from *Pano Atsa*. This structure was partially bulldozed but the remains of one four roomed structure is preserved. Like Ayios Theodoros *Pano Atsa*, the rooms are large and the stonework is well constructed and preserved to three courses high. Attached to this structure are three walls with the longest wall measuring 8 x 4 metres. This partially preserved room may be the remains a stone enclosure. Unfortunately bulldozing has destroyed half of this room in addition to structures to the east and west. A poorly preserved oven is located to the southwest of the structures and is shown on the cadastral plan XXVIII-46.

Both Ayios Theodoros *Palloura* and Ayios Theodoros *Pano Atsa* are composed of structures that lack the typical features of *mandres*. Typically *mandres* are poorly built structures with goat pens made of thorns and have limited domestic facilities (Given 2000: 227-229; Sollars 2005). The neat stonework, large room size, oven and uncertain presence of enclosures suggest that these structures were not built with the sole purpose of tending goats. Instead, the oven, large rooms and absence of enclosures suggest a more permanent and economically substantial basis to the structure (Given 2004b: 88). It is suggested that the large rooms found at both

Ayios Theodoros *Palloura* and Ayios Theodoros *Pano Atsa* were used for storage rather than as living space. No pottery was visible from either structure because both were overgrown with long grasses. Wall chinking did not include datable pottery. Therefore, dating information comes mainly from cadastral plans and ethnographic accounts.

5.1.3 Mountains and forest

Both topography and the division of privately owned land from State Forest determine the boundary between the mountains and foothills in the survey zone. The British Colonial Government delimited the Adelphi State Forest in the late nineteenth century. The limits of this forest run approximately east-west across the survey zone. The survey zone includes a portion of the Adelphi State Forest in order to address interaction within and out with the bounds of the forest.

The British Colonial administration saw the demarcation of the forest as a measure necessary for its preservation. In 1879 activities within the forest such as goat grazing, collecting wood and tapping trees for resin were prohibited (Thirgood 1987: 118). The Forest Delimitation Commission marked the forest boundary between the years of 1881 and 1896 (Given 2002: 8). Demarcation was based on information derived through cadastral surveys that started in 1909. In many cases boundaries could not be enforced nor activities regulated within the forest until the cadastral survey of 1929 (Christodoulou 1959: 73; Given 2002: 11). The boundary between State Forest and privately owned land was marked out with forestry cairns. The placement of these cairns and the attitudes towards the boundary is investigated in the foothill zone between the plains and the State Forest. Structures and communication routes located in this transitional area offer the chance to investigate the relationship between communication routes, settlement and attitudes towards forest demarcation.

The Asinou River Valley is located in the easternmost part of the survey zone. Settlement activity along this river valley focuses on the alluvial terraces closest to the river. Material evidence of settlement in the Asinou and Argaki ton Rotson River Valleys was located through the TAESP survey project and the PhD

research of L. Sollars (Gibson 2001; 2002; 2003; Sollars 2005). The Asinou and Argaki ton Rotson River Valleys are focal points for interaction. The TAESP and Sollars surveys recorded detailed information on settlement patterns and land use in the Adelphi Forest that include remains from resource extraction such as resin tapping scars on pine trees and pitch kilns, in addition to multi-roomed structures, churches and settlements. Roman cooking ware, tile and structural remains were located at Nikitari *Trimitheri* and Nikitari *Khalospita* (Figure 5.1) by the TAESP project and Sollars (2005) survey. When these remains are viewed together they provide evidence that settlement was present in the mountains since the pre-Medieval period (Given *et al.* 2003; Sollars 2005).

The most prominent architectural feature of the Asinou River Valley is Panayia Phorviotissa or Asinou Church that dates to the beginning of the 12th century. This church belonged to a monastery that existed in the area until the seventeenth century (Stylianou and Stylianou 1985: 114). Dedicatory inscriptions within the church suggest that it was built between the years of 1099 and 1105/6 and was donated by a judge or taxation officer named Nicephorus *Magistros*. Stylianou and Stylianou (1985: 115, 117) suggest that the church was built as a family chapel on Nicephorus *Magistros*' estate at Asinou. Soon after the construction of the church it became a monastery with Nicephorus as its first abbot. Remains of structures corresponding to this monastic complex were located by TAESP project to the south of the church (Given *et al.* 2003: 11-15). Pottery collected at Nikitari *Kapsalia* dates mainly to the fifteenth and sixteenth century though pottery from the late Medieval to Modern periods is also present at the site (Gibson and Robins 2003).

Nikitari *Asinou* is an abandoned village located on a knoll to the south of Panayia Phorviotissa. Pottery from the abandoned village dates from the Medieval, Ottoman and Modern periods with an intensive period of occupation during the eighteenth and nineteenth centuries. The most recent occupation of the village took place in the nineteenth and twentieth centuries when the village was used by goat herders (Panayiotis Loppas interviewed by Given 2001).

Although physical evidence from the settlement dates to this later period, historical records list Nikitari *Asinou* as a Venetian *casal* (or estate) in 1565 (Grivaud 1998: 469). Grivaud (1998: 215, 469) suggests that the village of Asinou, like many others throughout Cyprus, was abandoned at the end of the seventeenth century. According to census documents Asinou Village was deserted by 1881. The village of Ayios Theodoros located to the west in the Kourdhali River Valley appears in Venetian village lists in 1550. Unlike Asinou Village, Ayios Theodoros was continually occupied from 1550 onwards to the Modern period.

The mountain villages located near the Mandres Survey Zone relied on trade with villages in the mountains to the south and plains to the north. Although the trade of goat products, garden produce and wood in return for grain is known ethnographically, Road Unit data suggest that this communication has its foundations in an earlier period.

5.1.4 Land use

Resource extraction and land use play an equally important role in understanding interaction within the survey zone. As suggested above, the exploitation and trade of resources played an important role in how people interacted in the survey zone. Some resources were extracted as part of daily routines while other resources such as grain and wood formed part of more extensive trade networks. Growth of specific resources was restricted to certain topographical areas; the villages on the plains did not have ready access to timber, charcoal, resin or other forestry products while the mountain villages did not have access to grain. Settlement and Road Unit data associated with Nikitari *Vouni*, Ayios Theodoros *Pano Atsa* and Ayios Theodoros *Palloura* provide evidence in the foothills for this trade of resources between topographical areas.

The predominance of cereal cultivation makes the plains of the Mandres Survey Zone environmentally distinct, especially around the village of Kato Koutraphas *Mandres*. Some scattered cultivation of almonds and fruit trees is present between

the plains and the foothills, while patches of uncultivated land are dominated by batha including spiny burnet, thyme and wild grasses.

The foothill zone of the survey area is a transitional environment between cultivated fields, batha and the forest (Urwin 2001). A variety of produce is grown in the open forest of the foothills. Vegetation includes wild grasses with limited pine cover and mosphilo fruit bushes. In some areas mosphilo dominates side hills and appears to be managed or tended. Cultivation of privately owned land includes small garden plots with fruit trees. Although no small-scale grain production is currently found in the foothill region, *dhoukani* blades located at the village of Nikitari *Vouni* suggest that in the past people threshed grain in the village. Fox, hare and domesticated goat flourish in the foothill environment.

The extraction and transport of forest resources had extensive impact on the formation and maintenance of communication routes in the survey zone. Physical evidence for forest resource use in the Adelphi Forest includes mainly logging and resin tapping. Wood resources such as *Pinus brutia*, *Quercus alnifolia* (golden oak) and the Terebinth bush or *Pistacia terebinthus* were widely used throughout the survey zone for charcoal, fuel and tool making (Burnet 2004). Although much of the evidence for timber use in the survey zone comes from the nineteenth and twentieth centuries when Cyprus was a regional supplier of charcoal, pine from the Adelphi forest was used widely throughout all periods of forest occupation (Thirgood 1987: 117). It is known from ethnographic sources that *Pinus brutia* wood was cut: collected and sold as firewood to villages on the plains (Theodoulos Theodoulou: Christos Ioannou and Panayiotis Loppas interviewed by Hadjianastassi 2003). The British Colonial Government harvested pine trees in the Adelphi forest especially during the World Wars.

Scars from resin tapping of *Pinus brutia* are concentrated within the Asinou and Argaki ton Rotson River Valleys. Tar and pitch from *Pinus brutia* are best known as a waterproofing for pottery vessels such as *pitharia* and amphorae but are also known to waterproof wood and wine skins (Burnet 1997: 79; Panayiotis Loppas interviewed by Given 2001; Thirgood 1987: 118).

Within the survey zone medicinal plants include myrtle and *Cistus creticus* L or cistus. Myrtle is found in gully bottoms and near the rivers in the mountainous region of the survey zone. Panayiotis Loppas remembers that the leaves of the myrtle shrub were dried and ground into a powder to tend rashes (interviewed by Given 2001). Ladanum formed from cistus was used to combat the plague in the Venetian period (Christodoulou 1959: 136).

5.1.5 Physical landscape

The geology and topography of the Mandres Survey Zone plays a role in where communication routes are located and their morphological characteristics.

Whether or not a path runs along the top of a ridge, the sides of a river valley or the base of a gully is influenced by geology, socio-cultural and economic factors. The location and morphology of roads and paths discussed in the section to follow are at least partially linked to the geology and topography of the survey zone.

Geomorphological work completed through the Troodos Archaeological and Environmental Survey Project has produced an in-depth picture of the geology and the geomorphological processes taking place in the northwestern Troodos Mountains (Given *et al.* 2003: 2-15). The northern part of the survey zone consists mainly of plains composed of Pleistocene alluvial terraces and pillow lavas covered by a layer of calcium carbonate. This stable surface is incised by north running rivers that leave deep channels. Activity such as ploughing over field boundaries to expand agricultural fields has buried many fertile soils in this area (Gibson and Gleeson 2001).

The foothills of the survey zone consist of pillow lavas that display varying degrees of stability. The rivers that incised the Asinou and Argaki ton Rotson Valleys left Pleistocene alluvial terraces, giving the valley a stepped appearance. These terraces are composed of gravels, silts and volcanic rocks belonging to the Troodos ophiolite complex (Given *et al.* 2003: 2-15). Overall, weathered bedrock forms the topmost layers of the mountain soils. The mountains often have steep long linear bedrock spurs with narrow ridges. These spurs are cut by gullies that form through the erosion of the colluvial silts that make up the hillslope. Foot and

toe slopes on the other hand are made up of river alluvium. The summits of mountains are rocky and unstable with little soil accumulation. In areas where Pleistocene terraces are still preserved there is less slope, greater stability and more soil formation (Given *et al.* 2003: 2-15).

The history of the Mandres landscape forms the foundations for the following discussion of survey data. Road Unit data from the plains, foothills and mountains are discussed separately with reference to specific themes relevant to each area. These topographically specific data are merged into a wider discussion of three communication routes that transcend these topographical zones (Section 5.5).

5.2 Plains

Fertile soils have formed on the stable alluvial terraces in the plains. The cultivation of cereals dominates the area today and in many cases agricultural practices obscure or have obliterated traces of old communication routes, especially in the northeastern part of the survey zone. The preservation of communication routes improves to the west around the village of Kato Koutraphas *Mandres* because the landholdings are less extensive. The morphology of roads and paths in the plains differs from the morphology of roads and paths found in the foothills and mountains. The reason for this is related to the local geomorphology, landscape stability and route function.

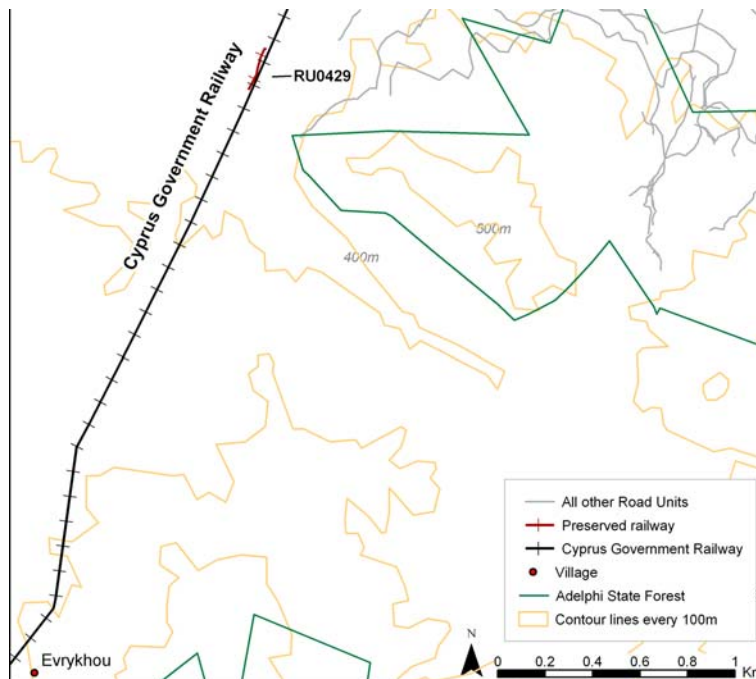
The plains are made up of 40 Road Units. In order to discuss these Road Units effectively I divide them into two categories based on morphology: unpaved and paved Road Units. While unpaved Road Units include roads, paths, and rail beds, paved Road Units make up the British Colonial road that cuts across the survey zone.

5.2.1 Unpaved Road Units

Paths, rail beds and roads make up the majority of unpaved Road Units in the plains. As mentioned previously the railway passed through the westernmost portion of the survey zone. The Cyprus rail line is represented in one Road Unit (RU0429). Descriptions of the railway state that the gauge of the track was 76

centimetres and had rails laid at approximately 30 pounds to the yard (13.6 kg to .91m). Beneath the rails were horizontally lain wooden beams that fastened with spikes and acted as supports (Lukach and Jardine 1913: 179). The only evidence of the railway in the survey zone was the rail bed or platform on which the rail line ran.

In general Road Unit RU0429 has a surface not dissimilar to paths in the region. The Road Unit's low slope (4 degrees) and surface are consistent with descriptions of the railway (Luke and Jardine 1920: 184). The narrow width (70 cm) of the Road Unit may be attributed to slumping of the surface following its abandonment. The main feature that distinguishes the railway Road Unit from those of paths is the absence of the curved outer edge that is characteristic to paths in all survey zones. Although this small Road Unit is difficult to display effectively, Figure 5.2 shows RU0429 in relation to the main Nicosia to Troodos Road in addition to the general location of the railway in the survey zone.



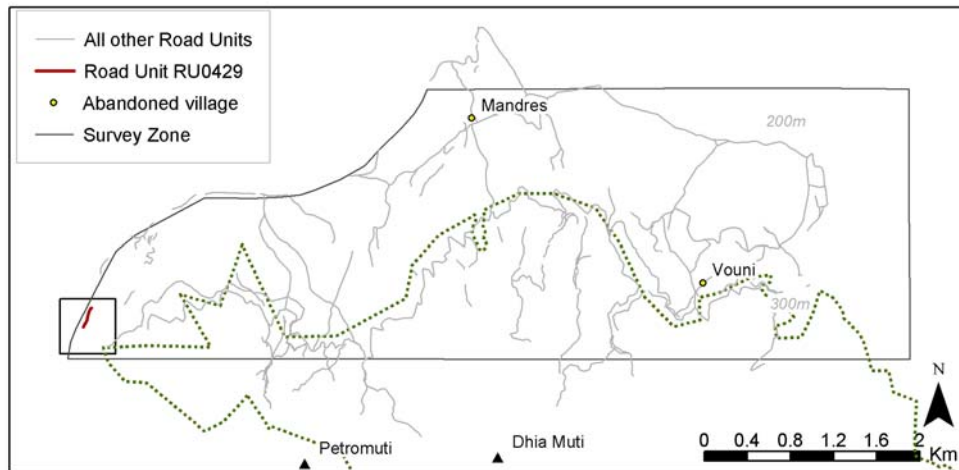


Figure 5.2: Road Unit RU0429 and general location of the Cyprus Government Railway

Road Unit RU0429 is a segment of the railway that was extended from Morphou to the village of Evrychou in June 1915 to transport grain and wood (Luke and Jardine 1920: 184). The railway was a system of communication that was dependent on a complex network of roads and paths that existed in the mountains, foothills and plains. Its efficiency in the twentieth century was only because the system of communication that preceded it was already firmly established.

Cadastral plans are a valuable resource for understanding the age of roads and paths on the plains. In general unpaved Road Units in the plains appear modern. By comparing the trajectory of these roads and paths with those on the cadastral plan we can see that most roads were called ‘footpaths’ in 1925 when the first cadastral survey of the region took place.

Today these footpaths have been widened to facilitate the movement of modern traffic, including farm vehicles, military vehicles and dump trucks. In general, unpaved roads located on the plains have widths ranging between 1.8 metres and 4.8 metres. Unfortunately, these widths are only indicative of the modern road morphology rather than the morphology of that which existed previously.

Modern agricultural activity has destroyed morphological evidence for previous communication routes in all except one case. One path preserved in the plains corresponds to a path on the cadastral plan – Road Unit RU0552 at Kato Koutraphas *Pikopitidhia* (Figure 5.3). This preserved segment of path is located

on a knoll between two agricultural fields. Batha vegetation and open forest surrounds the path. The nature of this uncultivated environment contributed towards the path's preservation. Although I am aware of the limitations of using this path as a template for those that are not preserved, its morphology provides a possible window into the form of other footpaths and tracks shown on the cadastral plan.

Road Unit RU0552 is 381 metres long with a surface slope of 4 degrees. Overall this path is morphologically consistent throughout its length, with a width of 60 cm and worn or dug 10 cm deep. The narrow nature of the path suggests that carts were not used on this route. Instead it is likely that travel took place by foot and pack animal. Road Unit RU0552 has a stable surface of dirt and gravel and is covered to 90% by thyme and grass. No material culture was found *in situ* on the path surface nor was settlement evidence located along the route to suggest a date when this path was used or abandoned. Evidence from vegetation on the path surface, aerial photographs and current land use information suggest a date for the last use of the path.

In some places young pine trees were planted intentionally along the path using it as a makeshift terrace. Two trees aged between 15 and 30 years were found in one segment of the path. These trees date the last use of the path to at least 1974. By comparing 1963 aerial photographs with the current landscape it is evident that the boundaries of agricultural fields have changed significantly in the past 40 years (Gibson and Gleeson 2001). The field to the north of the path is shown below (Figure 5.3).

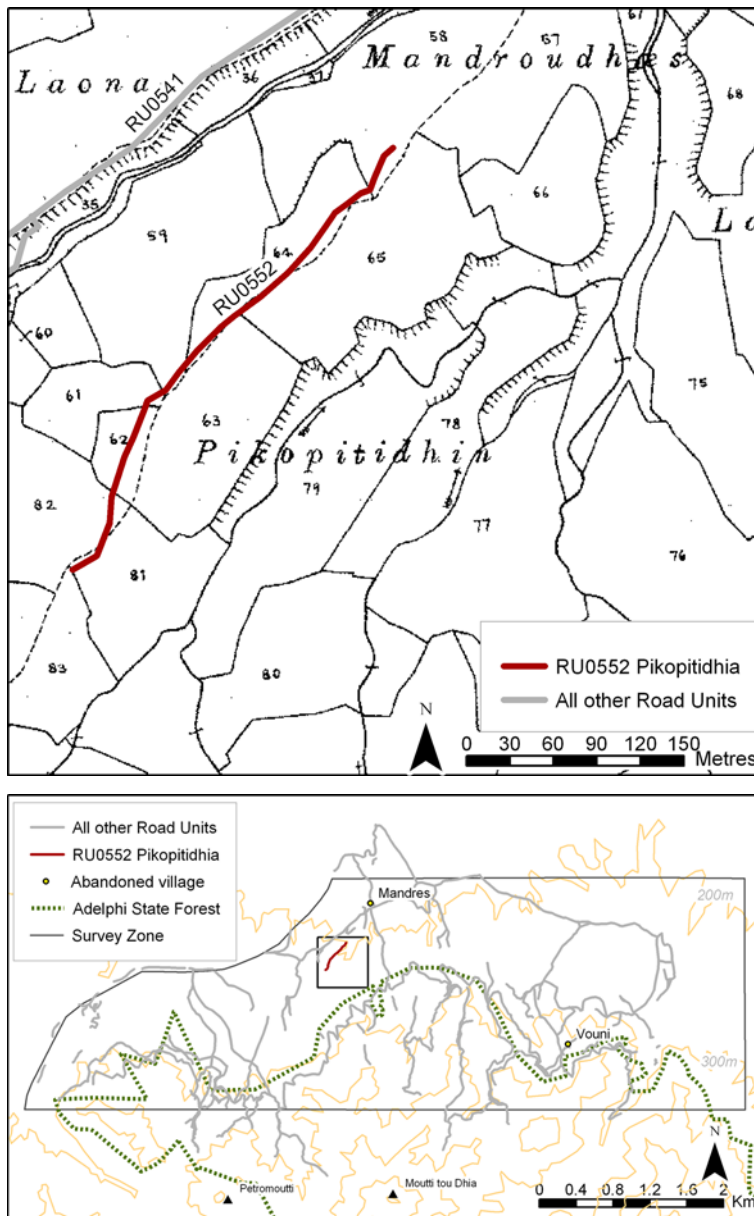


Figure 5.3: Road Unit RU0552 Kato Koutraphas *Pikopitidhia* and associated land plots

Road Unit RU0552 ends at the edge of land plot 65 and 81. The cadastral plan in Figure 5.3 shows that the path continues northwest between land plots 57 and 58. Obviously this path was destroyed when plots 57 and 58 were expanded and their boundary ploughed over. It is possible to propose a tentative date for the abandonment of the path to the period between 1963 when the aerial photograph was taken and when the ploughed field boundary was first observed in 2001. The proximity of the buffer zone and military activity in the area suggests that the expansion of agricultural fields is linked to more focussed occupation of the area following the military conflict of 1974.

The geographic and historical context of this route can be partially understood from looking at the cadastral plans. According to the cadastral plan the path that includes RU0552 connects the village of Kato Koutraphas *Mandres*, located .5 km to the northeast, to Asinou Village 3.5 km to the southeast. Three other Road Units of interest (RU0543, RU0544 and RU0467) are marked on this plan in Figure 5.4.

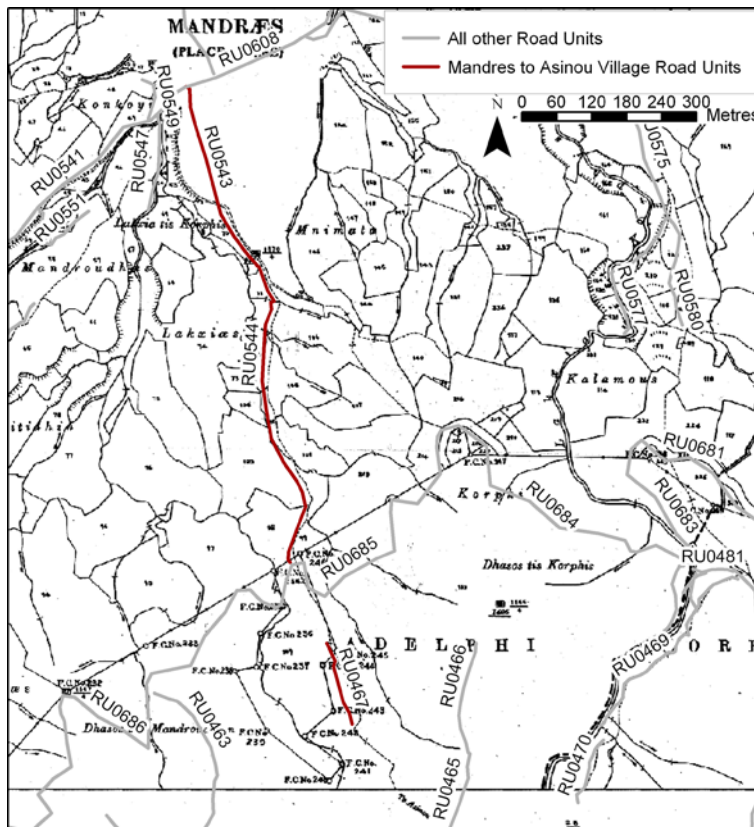


Figure 5.4: Road Units connecting Kato Koutraphas Mandres and Nikitari Asinou Villages

These Road Units similarly follow the trajectory of a footpath connecting the village of Kato Koutraphas *Mandres* and Nikitari *Asinou* Village. Road Units RU0543 and RU0544 show evidence of widening to facilitate modern traffic. The third Road Unit (RU0467) in this route located 100 metres from the southernmost end of RU0544, is one metre wide, unstable and ranges morphologically between a road and a path.

It is evident from the cadastral plan that this Road Unit is part of a pre-existing route that was destroyed on the plains by modern activity. Road Unit RU0552 (*Pikopitidhia*) and RU0543, RU0544, RU0467 (*Lakxiaes*) make up north-south

routes linking the plains to the Adelphi forest and onward into the Asinou River Valley (Figure 5.5).

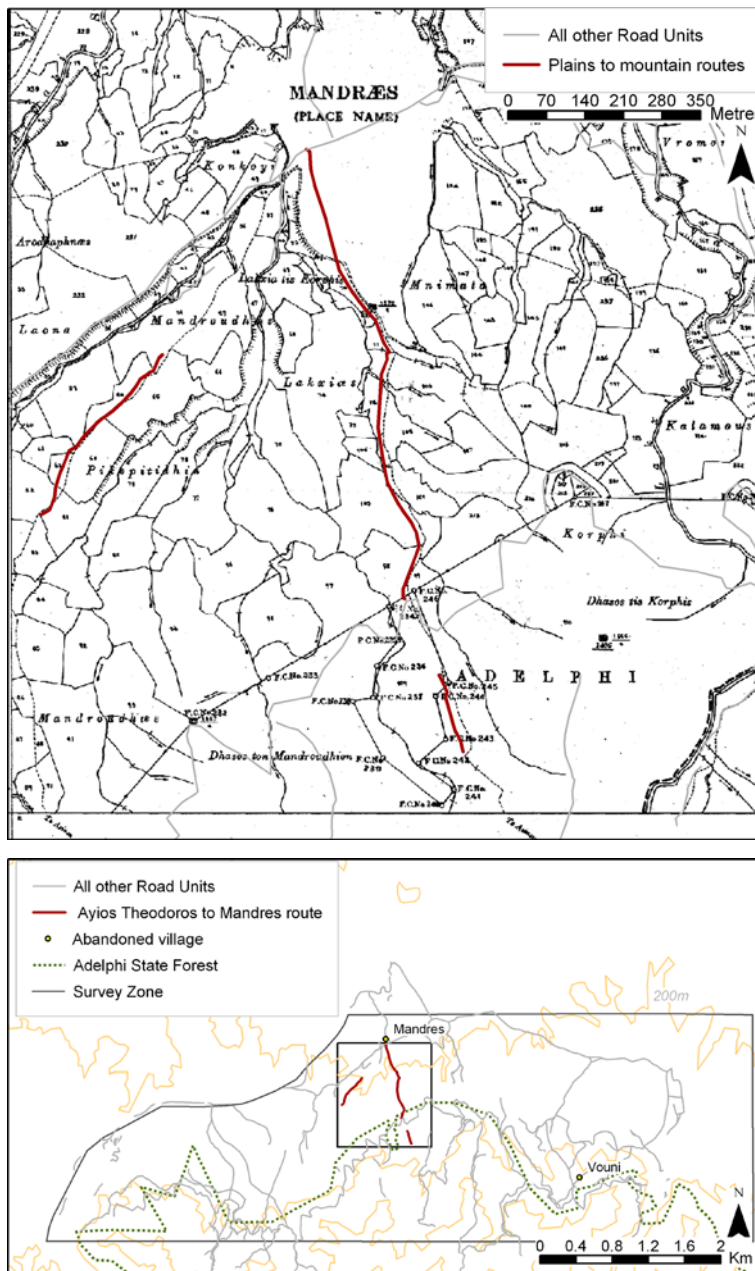


Figure 5.5: Plains to the Adelphi Forest routes

Interestingly, there is no known historical, ethnographic or archaeological connection between the seasonal settlement of Kato Koutraphas *Mandres* and Nikitari *Asinou*. Although records for both villages state that they were abandoned by 1881, others show that they continued to be inhabited, albeit with a seasonal focus. According to a village plan, Kato Koutraphas *Mandres* had 42 threshing floors in the 1920s (Given 2000: 224; Ionas 1988: 20). In the early twentieth century Kato Koutraphas *Mandres* was the seasonal settlement belonging to the

villages of Galata and Ayios Theodoros. Grain produced in the plains supplied the needs of these villages. Similar interaction between the plains and mountains is found throughout the survey zone. The Asinou and Argaki ton Rotson River Valleys were known for their goats and goat cheese, while the area also offered forest resources to those villages on the plains (Panayiotis Loppas, Christos Ioannou and Theodoulos Theodoulou interviewed by Hadjianastassi 2003). Intermarriage between villages gave families the opportunity to access previously unavailable land and resources.

Communication routes linking the village of Kato Koutraphas *Mandres* to the villages of Ayios Theodoros and Galata are not well preserved in the survey zone. One segment of the road (see Figure 5.5) belonging to the Kato Koutraphas *Mandres* – Ayios Theodoros route is recorded as Road Unit RU0520, RU0521, RU0540, RU0541 and RU0608. Although structural remains of the path surface are not preserved, Chrysostomos Georgiou (interviewed by Hadjianastassi 2004), a villager from Ayios Theodoros, remembers the path as part of a route villagers used to travel between Ayios Theodoros and Kato Koutraphas *Mandres*. This route and the associated Road Units are shown in Figure 5.6.

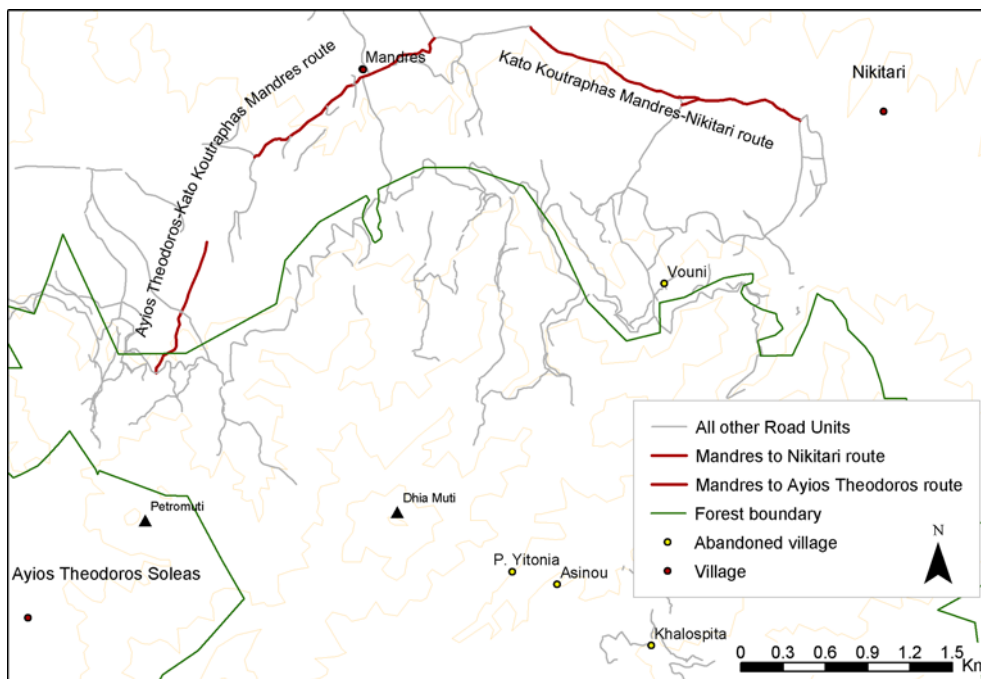


Figure 5.6: Communication Route between Kato Koutraphas Mandres and Ayios Theodoros and Kato Koutraphas Mandres and Nikitari Village.

There is no evidence that movement between Kato Koutraphas *Mandres* and Galata took place via cross-country footpaths. Instead the main Evrychou road was the most feasible method of travel. Villagers moving the nine kilometres from Kato Koutraphas *Mandres* to Galata in the twentieth century had the option of using the British colonial road that cuts across the survey zone. This route is discussed in detail in the following section.

Although north-south routes of communication linking the plains to the foothills and mountains are the most common in the survey zone, east-west routes across the plains were also important (Figure 5.6). Cadastral plans confirm that connections existed between Kato Koutraphas *Mandres* and Nikitari Village in the easternmost part of the survey zone. One important east-west route branches from the main road to Koutraphas at the locality Nikitari *Khalospitoudhia*, ('ruined houses'). This road is composed of nine bulldozed Road Units (RU0583, RU0585, RU0587, RU0588, RU0643, RU0644, RU0646, RU0648, RU0650). The 1924 cadastral plan shows a track or road that suggests this was previously a major east-west communication route that facilitated movement of carts and natural resources such as grain across the plains.

Military activity and standing cereal crops limited the detail of road survey in the region between Kato Koutraphas *Mandres* and Nikitari village. Therefore the picture of the eastern plains may be distorted.

Despite acknowledging the fact that the survey of roads and paths on the plains is distorted due to poor preservation and visibility, a striking pattern of communication nevertheless exists. Although the plains are flat with fewer obstacles to complicate route formation and movement, the most common routes of communication appear to travel between the plains in the northern part of the survey zone and the mountains in the south. Few routes were located that crossed the plains east-west. In 1925 the Director of Public Works H. Sims (SA1/425/1925) made passing reference to travelling in Cyprus, the "plains in Cyprus are covered with a maze of tracks and on horse back one can travel as the crow flies. In the hills the tracks are of course constrained by the contours". Although it was possible to travel cross-country without path or road as a guide,

very few people actually did. Instead travelling within the Mandres Survey Zone took place via carefully planned routes. It was more efficient, safe and secure to travel via communally used and maintained roads and paths than moving independently across an unworn landscape regardless of whether moving through the plains, foothills or mountains. This topic is explored more thoroughly with relation to all survey zones in the discussion chapter of this thesis.

5.2.2 Paved Road Units

Twenty-one paved Road Units are located just to the north of the Adelphi Forest foothills in the northwestern segment of the survey zone. Several different phases of construction are represented in these units where the topmost tarmac surface covers a pre-existing cobbled surface. The following discussion focuses on the British Colonial road as a cobbled surface and begins by looking at the historical background to these Road Units.

In 1900 the road connecting Nicosia to the Troodos was completed under the direction of the Divisional Engineer Hugh Nicolls. Details of this road are contained within the Carriage Road Report issued by Nicolls in 1901 (SA1/1922/1899). The primary purpose of building this road was to link Nicosia to the military and government buildings in the Troodos Mountains while facilitating communication and exchange between the villages southwest of Nicosia, including Peristerona, Astromeritis, Kato Koutraphas, Evrychou and Kakopetria (SA1/1922/1899 Red 73).

This route was constructed in three main stages (SA1/1922/1899 Red 81-78). The second stage of this road is included in the Mandres Survey Zone. The first stage was started just outside Nicosia in 1880 as relief work. In 1899 the road connected Nicosia with Astromeriti village. Astromeriti village was connected to Evrychou during the second stage of the project. A third class road was built between Astromeritis and Kato Koutraphas (16 feet wide = 4.87 metres) by four groups of labourers in six weeks. It included the Eloea River Bridge, which at the time was the longest bridge constructed by the British Colonial Government in Cyprus. To the south of Kato Koutraphas the road had a fourth class unmetalled and

ungravelled surface. Its construction started in June 1899 and was completed by October of the same year (SA1/1922/1899 Red 79-78). The third stage of the road construction project between Evrychou and the post office at Troodos was finished by September 1900 (SA1/1922/1899 Red 81-76).

The Nicosia to Troodos road used up to 6000 local labourers in its construction, participating in what Sir Garnet Wolseley described as 'forced labour' (Bickford 1878: 95-96; Cavendish 1991: 166). Labour on the road often crossed the boundaries between gender, religion and class divisions. On the Limassol to Platres road special effort was made to keep work groups separated based on village and ethnic group for example, Greek villagers were kept separate from Turkish villagers (Bickford 1878: 96). These were preventative measures taken to reduce the chance of conflict between work groups.

The Village Roads Law that required all people to work six days a year building roads came into being in 1901 (Schaar *et al.* 1995: 38). The segment of British Colonial road within the survey zone was probably built through a combination of local villagers who contributed labour while surveyors, foremen and Cypriot overseers from the Public Works Department acted as liaisons and interpreters (Schaar *et al.* 1995: 38).

The Road Units belonging to the British Colonial road that passes through the survey zone represent at least two different phases of construction. Below a cross section of a typical segment of this British Colonial road is shown in Figure 5.7, while the photograph beneath it in Figure 5.8 shows what the road looks like from the road level.



Figure 5.7: Cross section of British Colonial Road showing layering of tarmac and cobbling

The cross section photograph shows how a layer of tarmac covers a layer of cobbles. In some cases an asphalt layer covers this tarmac, which in turn covers a cobbled surface. Road Unit RU0614 is an example of where the asphalted Nicosia-Troodos road covers earlier tarmac followed by a cobbled layer. It is likely that the older tarmac surface was covered with the new asphalt within the past 50 years. In this case only partial segments of cobbling are exposed on the south side of the Road Unit.

British Colonial roads were paved with road metal made of broken stone laid at varying widths depending on the type of road. Road metal was chosen for toughness, hardness, durability and crushing strength, resistance to wear, water absorption and cementing property – or its ability to resist displacement through use (Bhattacharjee and Basu 1966: 81-82). The road metal was packed on end so that only the ends of the road metal are exposed on the road surface.



Figure 5.8: On left photograph of British Colonial road showing cobbling beneath a tarmac surface, on right view of road edging.

The edges of British Colonial roads are distinctive. Unlike the other road metal, the metal used in edging is placed horizontally along the stones' longest side as shown above (Figure 5.8). Unfortunately the tarmac covering obscures the centre of this road that peaks to enable water runoff.

In 1925 the Director of Public Works: H. Sims: issued a report on the roads in Cyprus and the methods used in their construction and maintenance (SA1/425/1925 Red 6-4). This report provides valuable information concerning how British Colonial roads were constructed. According to Sims the process of constructing roads involved four steps. The first step included clearing the road: followed by covering the surface with a “stone foundation 6 inches to 8 inches thick” that in turn is then “hand-packed: sprawled and rolled with ox-drawn rollers” (SA1/425/1925 Red 6-4). Once the foundation was set the surface was covered with gravel and left to weather for one year. Metal was used to cover the surface of the road after this time elapsed. This fourth stage was not always necessary.

The cross section in Figure 5.7 shows that Road Units forming part of the Nicosia-Troodos road were both gravelled and metalled. According to the report issued in 1901 by the Director of Public Works, Hugh Nicolls (SA1/1920/1899),

the section of road built between Astromeriti: Koutraphas and Evrychou in 1899 was not metalled. It was only in 1901 that gravelling of muddy portions of this route took place.

The segment of road between Kato Koutraphas and Evrychou was first constructed as a fourth class road in 1901. In 1911 the road was reclassified as secondary (SA1/1633/ 1911 Red 14). According to the 1925 report on road construction and maintenance issued by Director of Public Works: H. Sims: secondary roads were typically metalled (SA1/425/1925). This road was metalled either when the fourth class road changed to a secondary road between the years of 1901 and 1911 or the road metalling was part of the later post-World War road maintenance that included “filling up pot holes as they occur and entirely renewing the metal surface every four years” (SA1/425/1925).

Physical changes in the structure of the road reflect its increasing importance in the British Colonial period. The increased demands of traffic required a more durable surface and more regular repair to the road surface. Flooding in 1918 devastated many of the roads in the area. This flood prompted bridge maintenance and the construction of features such as curbing (Road Unit RU0563) to reduce the damage caused by future floods. I suggest that the bridges within the survey zone preserve the roads final maintenance episode before its course changed to the current Nicosia-Troodos route.

Local topography, environmental conditions and road building personnel played important roles in the formation of British Colonial roads. For example, the actual widths of the Road Units surveyed as part of the British Colonial road are 2 metres. The Director of Public Works H. Sims reports that all secondary roads have standard widths of 9 feet or 2.74 metres (SA1/425/1925). This discrepancy suggests that road building standards were not always fixed and instead depended on environmental practicalities and local communication needs. It is obvious that although the local road and weather conditions required road metalling the demands of traffic were not great enough to warrant widening the road surface. The influence of local attitudes and regional styles is discussed further with reference to bridge construction later in this chapter.

In India, where many British Colonial road building techniques were developed and documented, there is a correlation between the importance of roads and their thickness (Bhattacharjee and Basu 1966: 81). It is difficult to determine whether or not the same is true of early road building projects in Cyprus. Archival information from Cyprus states that metal on primary and secondary roads during the British Colonial period ranged in thickness between six and eight inches (152-203 mm). The cross-section of the British Colonial road discussed previously (RU0615) has road metal that ranges between 500 and 800 mm thick. This significant discrepancy in thickness is interesting. It is possible that this road is the end result of multiple periods of road metalling. Such an accumulation is possible if the road was repeatedly maintained without removing the old metal. However from the photo (Figure 5.7) it is evident that there is only one layer of road metal present. Instead, this local variation suggests that road building policy was flexible and adaptable to regional differences where modification of the policy was necessary.

Where possible, road metal was obtained from local sources. It is likely that the rock type used to metal the section of road between Kato Koutraphas and Evrychou was better suited to road building when broken into larger pieces. Where available, riverbed cobbles were used instead of specially broken metal, thus reducing the cost of quarrying and breaking. Once again personal preference and external pressures played a role in the construction and maintenance of communication routes.

Structural features

Structural features such as bridges, culverts and retaining walls were important to the function, appearance and experience of travelling the road between Nicosia and the Troodos. The morphology of Road Units, their structural features and road elements such as bridges, curbing and culverts influence and reflect how British Colonial roads were used. Before exploring this more thoroughly it is necessary to introduce the most prominent features of the British Colonial road: curbing, culverts and bridges (Figure 5.9).

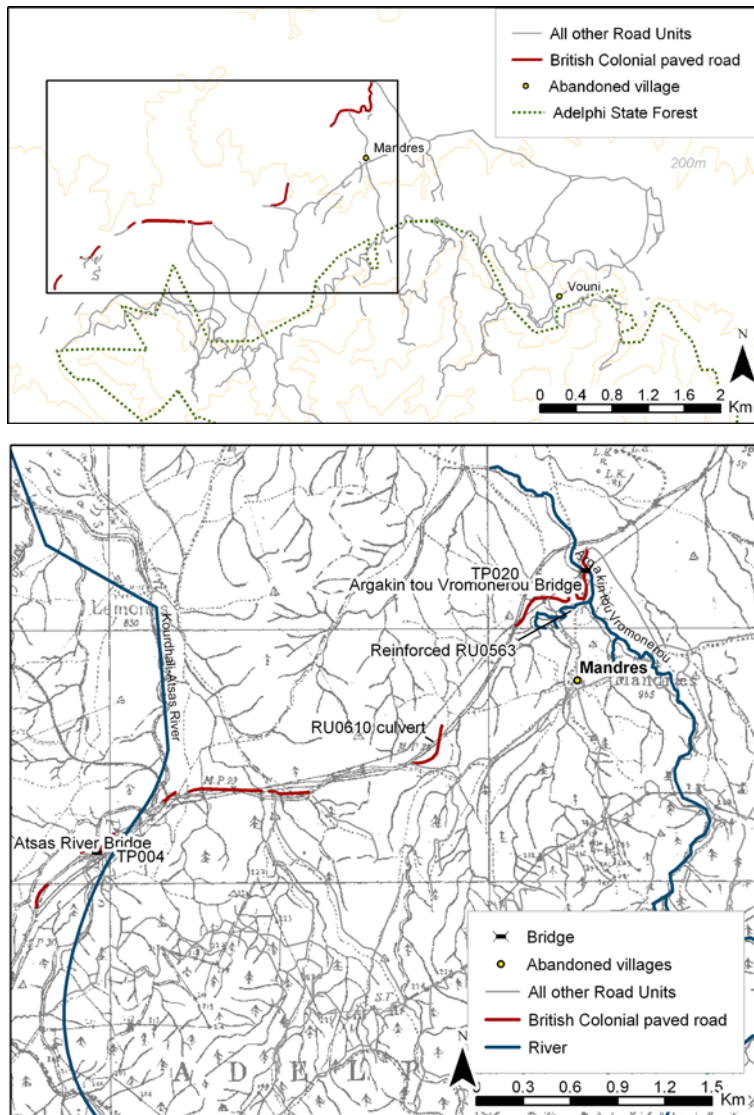


Figure 5.9: British Colonial Road Units showing culvert, Atsas River Bridge and Argakin tou Vromonerou Bridge.

Road Unit RU0563 is a curbed or reinforced segment of the British Colonial road. Its morphology is linked to its location at the apex of a hairpin bend just above a gully. The retaining wall shown in Figure 5.10 has a height between one and three metres on its gully side and is composed of stone in cement mortar (*cf.* Bhattacharjee and Basu 1966: 31).



Figure 5.10: View of retaining wall on British Colonial road [DSCN0695]

This retaining wall provides structural support for the road while reinforcing its outer edge above the gully (1966: 30). As the outer surface of the road was not built up, it appears that the wall was primarily constructed as erosion control (1966: 31).

The parapet or safety wall extends beyond the retaining wall on the southwestern side of the road and has a height of between 60 and 80 centimetres (Figure 5.11). The parapet serves two main purposes; it acts to add stability to the surface of the road while increasing the overall safety of the bend (1966: 34). Similarly the Road Unit's width (2.5 metres) is 50 centimetres greater than its adjoining Road Units. The extra .5 metre provided extra space for vehicles to manoeuvre around the bend. It is likely that the retaining wall and parapet if not the road metalling of RU0563 were completed as maintenance measures related to the post-1918 flood episode mentioned previously.



Figure 5.11:View of British Colonial Road and parapet

The only culvert documented during survey of the British Colonial road was associated with Road Unit RU0610, a two metre wide unit located just off the

modern Nicosia to Troodos Road. The arched culvert in Figure 5.12 is composed of cut masonry and carries the discharge from a stream from one side of the road to the other (*cf.* Bhattacharjee and Basu 1966: 19). The dimensions of the culvert fits with the typical dimensions that range between 1.2 and 2 metres laid out in Bhattacharjee and Basu (1966: 144-145).



Figure 5.12:View of British Colonial period culvert in Road Unit RU0610 [DSCN0746]

Two British colonial bridges are located in the survey zone: the Atsas River Bridge (TP004) and the Argakin tou Vromonerou Bridge (TP020). They are both masonry arched with stone block arches that rest on abutments (*cf.* Bhattacharjee and Basu 1966: 126). Both Road Units have metalled surfaces that, like the other British Colonial roads in the survey zone, have been covered by tarmac. Road Unit RU0566 runs along the top of a colonial bridge with three arches (Argakin tou Vromonerou Bridge). This bridge is constructed from yellow sandstone blocks. Plastering is present on the inside parapet of the bridge to reduce weathering and to increase its visibility to traffic. The bridge crosses the river channel northeast to southwest. The bridge is 18 metres long and 4 metres wide while the width of the Road Unit crossing the bridge is approximately 3 metres.

Road Unit RU0618 runs along the top of the Atsas River Bridge. This bridge is composed of regular cut stone blocks and has two arches. The bridge is 25 metres

long by 4 metres wide while the Road Unit has a width of 2.8 metres. Its retaining wall is constructed from river boulders that in turn is covered with mortar. The bridge runs northeast-southwest across a deep river channel. Nicolls describes this bridge as having two arches, a 20-foot span and 10 feet high (SA1/1922/1899). The bridge was difficult to construct as the banks of the river were high and required cutting deeply into the Evrychou side of the river (SA1/1922/1899 Red 79). The Atsas River Bridge was formed from stone from the quarries of Koronia and Phocassa near Kalokhorio (SA1/1922/1899 Red 79). This is the largest bridge within the survey zone.

Both bridges cross their respective rivers at the same angle. In both cases the bridges run northeast-southwest. I believe that this was a practical decision as the dominant direction of water drainage is southeast from the Adelphi mountains northwest to the village of Petra and onwards to the Bay of Morphou. The bridge crosses the current of the river at right angles to reduce the damage to bridges when rivers swell during the rainy season.

Symbolism and pride played a role in the structure and appearance of roads and bridges. As symbols of a new regime, roads and bridges were the medium through which engineering prowess and architectural design were expressed. In the section to follow I focus on the construction and appearance of bridges to discuss the role they played in communicating messages of style, control, symbol and resistance within the Mandres Survey Zone.

The pride and prestige of the road

More so than the road itself, bridges offered an opportunity for the engineer and his foremen to express themselves in the construction of aesthetically pleasing yet architecturally challenging structures. Because bridges were a different medium and a less common occurrence, they were used to express more personalised sense of style than was possible in road construction. The care with which stone was chosen for the construction of bridges and their detailed stone-carved drains are two examples of how pride in road building was expressed in the British Colonial period.

It is evident from the British Colonial records that Hugh Nicolls took pride in the bridges that were built under his direction on the Nicosia-Troodos road. Although much of the style was consistent throughout Cyprus, especially following the 1926 standardisation of widths and loads throughout the colonies, there were certain elements that road engineers could modify to personalise the construction (SA1/859/1926). The stone used in the construction of bridges often varied from one district to another or even from one region to another because of problems in obtaining source rock within proximity to the road.

The bridge shown in Figure 5.13 below is located to the northeast of the Road Units discussed above and crosses the Eloea River at Kato Koutraphas. At the time of its construction as part of the Nicosia-Troodos road in 1900 it was the longest bridge in Cyprus. It was 94 metres long with a width of 5.1 metres from parapet to parapet. Six arches span the bridge including five six-metre long arches and one three-metre span (SA1/1922/1899). Stone for this bridge originally came from Koronia hill located approximately 1.7 km to its southwest. This mountain supplied a white limestone for most of the bridge but the supply of stone ran out before its completion and a more yellow stone had to be brought in from further away. The mixture of this white stone with a yellow stone concerned the district engineer, but as Nicolls states, “the contrast of the two colours however is not disagreeable and gives a finish to the structure” (SA1/1922/1899 Red 79).

The Malounda Bridge that crosses the Akaki River was investigated by the Sydney Cyprus Survey Project (SCSP). This late nineteenth or twentieth century bridge reused a series of plaques from previous bridges – including one circular plaque with “a cross on a stepped base with rosettes about the two arms” (Given 2003: 160-161). Although aesthetics were not the driving force for engineering projects such as bridge building, it is evident that the appearance of bridges and public perceptions of these works played a role in British Colonial feelings of pride.



Figure 5.13: Eloea River Bridge at Kato Koutraphas Mandres (photograph taken by Chris Parks – TAESP)

Similarly, the Atsas River Bridge located in the southwestern part of the survey zone challenged engineers and gave them an opportunity to show off their skills to fellow government officials and local inhabitants (Figure 5.14). The steep and high riverbanks made the construction of this bridge over the Atsas River challenging (SA1/1922/1899 Red 79). The aesthetics of the bridge was closely linked to the quality of engineering that it displayed.



Figure 5.14: Atsas River Bridge with steep riverbank (photograph taken by Chris Parks - TAESP).

A fountain commemorating the construction of the Nicosia to Troodos road again illustrates this link between aesthetics, engineering and prestige. Figure 5.15 shows a white painted fountain that was constructed along the upper reaches of the Nicosia to Troodos Road in 1900. The inscription on this fountain reads, “The LORD sendeth the Springs into the Valleys which run along the Hills”. ‘Erected to commemorate the construction of the Nicosia-Troodos road’” (2960/99: 334/01). This fountain and its inscription links the spring to God and in turn the British Colonial road building programme. By memorialising the road and inscribing the fountain with the word of God, the British Colonial Government were communicating paternalistic links between the civilising impact of the British, their presence in Cyprus, and more specifically, their military presence in the Troodos Mountains to observe the island and maintain security in the Near East.



Figure 5.15: Fountain at Khrysovrysi in the Troodos Mountains commemorating the construction of the Nicosia to Troodos (photograph taken by Michael Given).

Interestingly, three years after the Nicosia to Troodos road was successfully completed Nicolls was promoted to the post of Director of Public Works. Road building projects successfully completed under Nicolls’ direction as divisional engineer between 1898 and 1904 played a role in this promotion.

The methods by which the roads and bridges within the survey zone were constructed were influenced by choices made by the Divisional Engineer as discussed above, but also by the foreman and workers. Although local inhabitants worked on the roads and bridges under the direct gaze of colonial officials, they were probably consulted for local information concerning previous routes, where to find local building material and source areas for stone. More importantly, the construction of the road was dependent on the local labour force. Villagers held a considerable amount of control in how roads were constructed and the length of time construction took. To obtain labour engineers were often forced to time road building with the harvesting season (SA1/15312).

The construction of the Nicosia to Troodos road posed a significant change to local landscape, economy, ideology and system of communication. Villagers participated in the construction of the road and watched as it proceeded across the Mesaoria into the foothills of the Troodos and finally climbing to one of the highest points of elevation on the island.

To the British Colonial officials working as part of the Public Works Department these roads were part of the process of colonisation – setting up the infrastructure necessary for the development of the island. Roads were areas of political tension as they symbolised control, demarcation and development (Given 2002: 2-4). The new road building programme and cadastral survey was a confirmation to the Cypriots of the British dedication to ownership and control of the island.

Resistance to British Colonial road building alternated between feigned ignorance, sabotage, false compliance and foot dragging (Scott 1985: 29). As part of the road building process villagers commonly petitioned the government for new roads to be built. These requests included statements concerning the willingness of villagers to contribute their mandatory 6 days labour a year to the construction of the requested road (for example SA1/1233/1915). In 1880 villagers from Evrychou and Peristerona were asked to help build those roads that they requested and volunteered their labour to work on but “when it came to the point, they declined on various excuses” (SA1/15259).

The bridges within the Mandres Survey Zone show evidence of overt forms of resistance. Both the Atsas River Bridge and Argakin tou Vromonerou Bridge have had the upper courses of their parapets robbed of stone. The exact timing of when this stone was removed is unknown however reports of resistance of this type are found in archival documents from 1882 and 1904. In a letter written to the Chief Secretary in the winter of 1882, a government official reports that dressed stones were robbed from the parapets of many bridges along the road between Nicosia and Larnaka “...In some cases the whole of the parapet has been destroyed” (SA1/15265). By the end of the same month a government notice was posted in English, Turkish and Greek giving a five pound reward for those giving evidence against those “evil disposed persons [who] have thrown down and carried away the dressed coping stones from several of the Bridges.” (SA1/15265). Similarly, Nicolls discusses the damage done to bridge parapets on the road between Lefka and Kythrea to the southwest of the survey zone. In his diary he states that much “willfull damage is always being done to bridge parapets etc on the road.... the shepherds in this neighbourhood appear to be more mischievous than in other places” (SA1/9/1904).

Symbolising British Colonial pride and skill, bridges were the most effective places to undermine these same elements through acts of resistance. The very morphology of the bridge made the manipulation effective. Everyone crossing the bridge was a captive audience for images of resistance. The resistances’ greatest impact was on those who had to slow considerably to cross the bridge. These people included those who could afford travelling by carriage and later by car. At this early period the possession of cars and carriages was confined to a certain class of people – government officials and those with wealth – those same people who supported the island’s new administration. Stone robbing was therefore intended as a symbol of resistance that was directed at all those who crossed the bridge but especially those who supported the new British administration and infrastructure.

5.2.3 Movement

The report issued by Nicolls in 1901 suggests that the Nicosia-Troodos road was built for movement by carriage between Nicosia, its outlying villages and Troodos. Carriages were a signal of class and gender and at this time very few villagers in the region owned them. Instead, people living and working locally travelled by donkey, mule or foot. Until recently communication and transportation of goods by donkey or mule was the most common means of travelling in the Mandres Survey Zone. There was little reason to purchase carriages until intervillage communication routes could accommodate them.

Although the British Colonial road served to facilitate movement by carriage and motor car the local population used the road as they would any other communication route. Travel to and from fields and moving goatherds from one grazing area to another took place along this road. In a government notice from 1908, entitled 'Regulations Under the Motor Car Law,' owners of cars were given strict instructions of how to react to pedestrians and livestock including putting "his car in such a position as such person ... [person in charge of stock] may require for enabling such stock to pass his vehicle in safety" (SA1/1694/1908).

Obviously the experience of travelling the British Colonial road by pack animal or foot was very different from travelling by carriage or car. Although the speed of travel by carriage and by donkey was not too dissimilar, the road width, bridge width and other traffic influenced the experience of travel. The increased speed of travel and limitations of mechanical transport changed the experience of travel and exaggerated differences between the various types of traffic using the road. For example, like many of the roads throughout Cyprus, the metalled road that runs through the Mandres Survey Zone was never widened to facilitate two cars passing without one party having to move onto the road shoulder (SA1/425/1925). Prior to the introduction of motor cars passing on such a narrow road was likely not as much of a problem.

Movement along the road was restricted the most by bridges. Bridge width represents the maximum width of vehicle that the bridge can hold. Bridge

crossings were signed with restrictions on vehicle speed and weight. These signs were written in English, Turkish and Greek and posted to caution drivers to slow as they travel over the surface of a bridge. An example of such a sign from a 1911 timber built bridge is shown in Figure 5.16 (SA1/1111/1911).

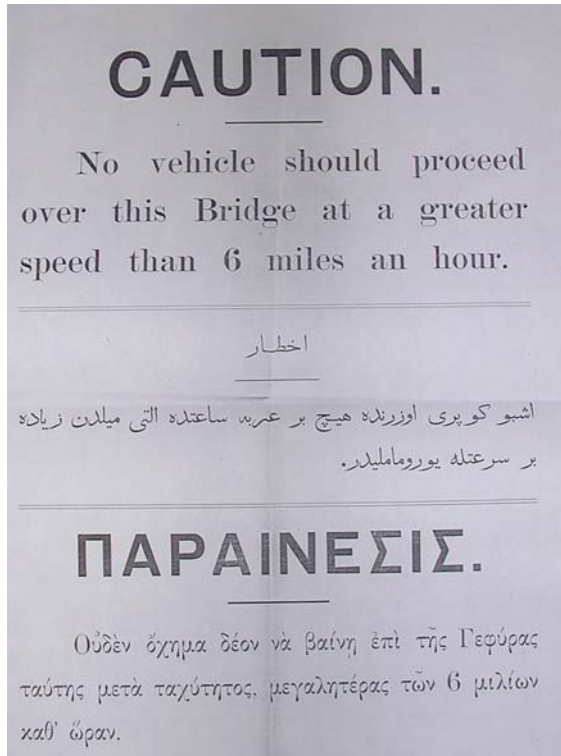


Figure 5.16: Speed restrictions for timber bridges on Limassol to Troodos Road

Communication routes in the plains cannot be viewed in isolation. Both the paved British Colonial roads and the unpaved roads and paths are entwined by a complex network of interrelated activities. Shepherds took their flocks to their fields regardless of whether they used the freshly metalled British Colonial road or one of the many paths that link the plains to the foothills and onwards into the mountains. Local inhabitants maintained their use of the complex interrelated network of paths that linked them to their villages and fields. British Colonial roads were constructed with the aim of providing the island with a much needed systematic network of communication. What the new government did not see was the fact that the new roads and railways relied and drew upon a previously established pre-British system of communication.

5.3 Foothills

In this section I explore the relationship between communication route morphology, resource extraction, land use, settlement and the topography of the foothills. The relationship between settlements and communication routes is especially important because it suggests how people moved through and stopped in the landscape. The boundary between the forest and the foothills is physically marked out with forestry cairns. I therefore take this opportunity to address forest delimitation and how this influenced communication and habitation in the area during the British Colonial Period.

Communication routes in the foothills of the survey zone are influenced by two main factors. Firstly, the physical location of the foothills ensures access to resources from the plains like cereal crops while also enabling exploitation of forest resources such as timber, fuel, resin, hunting game animals and collecting wild plants for medicine and food. Secondly, the environment of the foothills is an area with a distinct set of resources of its own. The foothills is the ‘best of both worlds’ in terms of resource base, where cereal cultivation, though limited, is possible alongside scattered areas of open forest. To investigate interaction in the foothills I focus on the region surrounding Nikitari *Vouni*, the area of P020 Ayios Theodoros *Pano Atsa*, and P021 Ayios Theodoros *Palloura*.

5.3.1 Interaction in the foothills

Nikitari *Vouni* is an abandoned village ideally situated for the exploitation of resources from either plains or forest, while the immediate environment is able to support a rich variety of resources. A series of roads and paths are associated with Nikitari *Vouni* (Figure 5.17). Those Road Units shown in purple are modern roads. Road Units RU0674 and RU0675 run east-west skirting the boundary of the Adelphi forest. This modern four metre wide road functions as an access route for fire prevention and fire fighting.

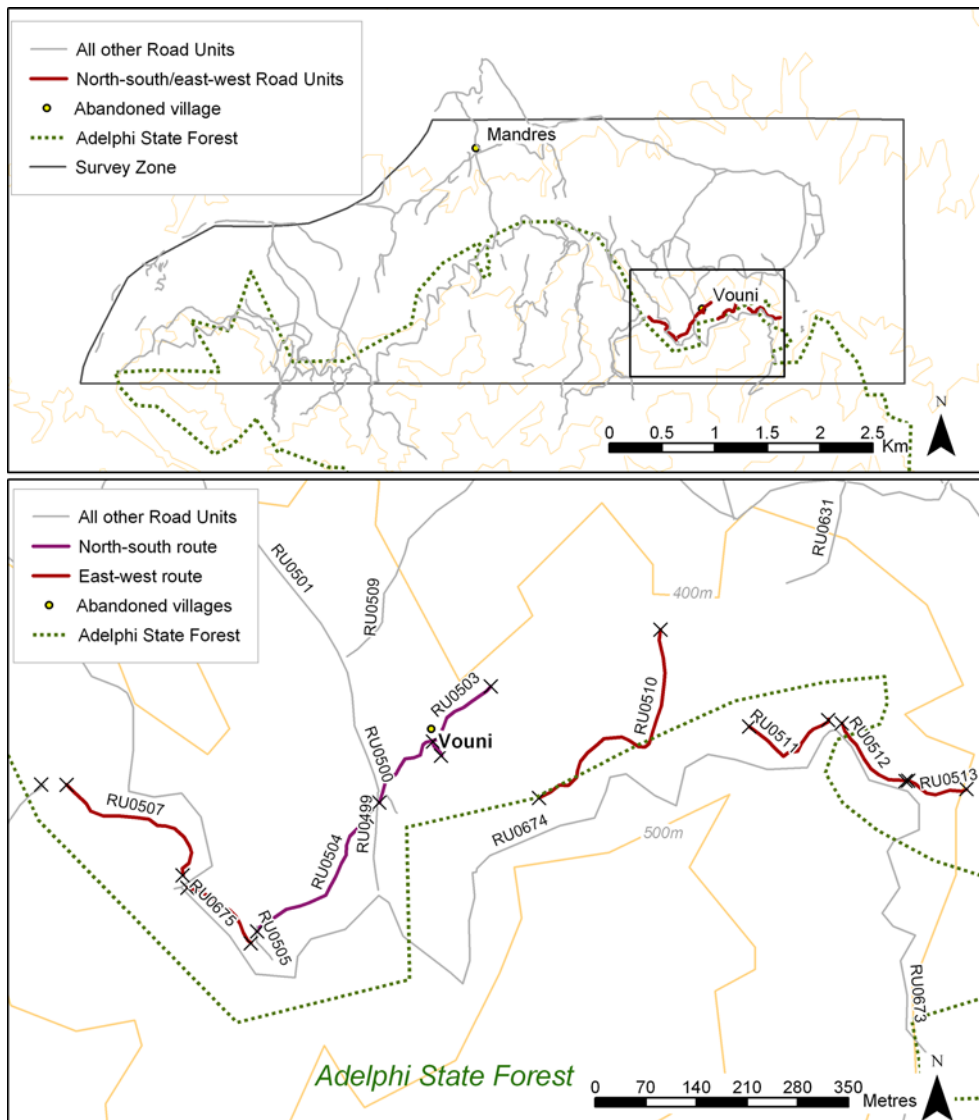


Figure 5.17: Cadastral plan showing roads and paths associated with the abandoned village of Nikitari *Vouni*.

Located on private land, Road Units RU0499-RU501 branch north off the forestry access road. These units are between 1.8 and 2.0 metres wide with unstable dirt and gravel surfaces. Like forestry access roads, these Road Units were constructed by road grading equipment that ploughed through the settlement of Nikitari *Vouni* leaving piles of rubble to either side of the road.

The path running southwest-northeast through the village of Nikitari *Vouni* is composed of Road Units RU502, RU503, RU504 (Figure 5.17). This path passes between the terraces and buildings of the settlement. The close association of the path and the settlement indicates that they were used contemporaneously. The course of the path suggests that the route facilitated interaction and

communication between the plains and the foothills. There is little evidence for a direct route southwards into the forest from Nikitari *Vouni*. Instead, the path skirts the mountains following the 450-metre contour line both east (RU0510-RU0513) and west (RU0506, RU0507) (Figure 5.17). Eventually the path connects to a route that travels southward into the forest. This route is designated 'Route 2' in the mountains section of this chapter. This is not a direct or convenient route for travelling between the village of Nikitari *Vouni* and the villages to the north. Instead this route of communication focused on movement between the foothills and the plains. The path shown on the cadastral plan suggests that Nikitari *Vouni* was linked to the village of Nikitari via RU0502 and RU0503. Unfortunately bulldozing and cereal cultivation to the northeast of RU0503 has destroyed any further evidence for this route.

Unlike Nikitari *Vouni*, both Ayios Theodoros *Pano Atsa* (P020) and Ayios Theodoros *Palloura* (P021), are located on a communication route that connects the mountains to the plains. Roads and footpaths depicted on the cadastral plan help to identify and reconstruct those segments of road that were widened for forestry or agriculture. Two main roads and two paths make up the main route of communication associated with these structures.

Intersecting Road Units RU0518, RU0520, RU0521 and RU0528 make up the northernmost part of the communication route associated with Ayios Theodoros *Palloura* (Figure 5.18).

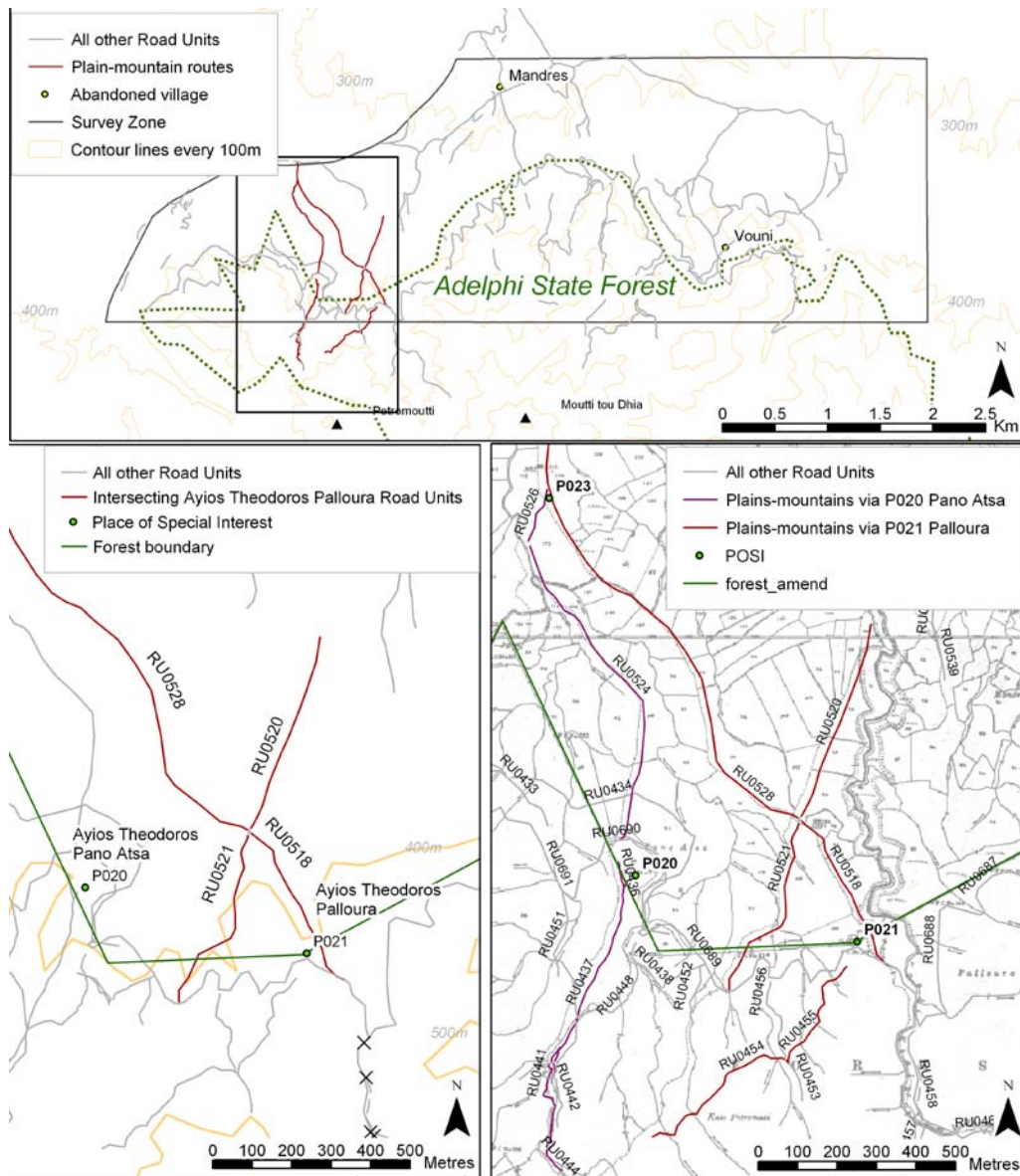


Figure 5.18: Intersecting Road Units forming part of the plains to mountain communication route via Ayios Theodoros Palloura (P021) and Ayios Theodoros Pano Atsa (P020) .

These Road Units are graded and vary in width from 2 to 2.2 metres. The most morphologically distinct Road Unit is RU520. This segment of road is used seasonally; because it is located in an area of heavy cereal cultivation the road becomes overgrown with wheat during the summer. These intersecting roads are displayed on the cadastral plan Figure 5.18. It is evident from the map that Road Unit RU518 is associated with Ayios Theodoros Palloura. This Road Unit merges with the forestry access road that parallels the boundary of the Adelphi forest just to the southeast of P021.

A path composed of RU0454 and RU0455 is located to the southwest of *Palloura*. The trajectory of these units suggests that the path once connected RU0518 to the plains. Unfortunately remains of this intersection or junction were destroyed by the construction of a firebreak and forestry terracing. The cadastral plan suggests that this path joined with another path coming from the southwest near Ayios Theodoros *Pano Atsa*.

The second part of this communication route is associated with Ayios Theodoros *Pano Atsa*. This route begins on the plains with RU0524 and RU0526. Both of these Road Units are between 1.4 and 1.5 metres wide. Where this road meets the foothills and enters the State Forest it changes into a path with a width of 60 centimetres. This dramatic morphological change exemplifies the effects of traffic and topography on the morphology of roads and paths. Road Unit RU0436 is directly associated with the structure of Ayios Theodoros *Pano Atsa*. This path starts adjacent to forestry cairn 224. The path from the foothills southwards into the forest is composed of RU0436, RU0437, RU0440, RU0441 and RU0444. On average all segments of this path were 60 cm wide and only RU0441 was bedrock cut as shown below in Figure 5.19.



Figure 5.19: Bedrock cut path RU0441.

As mentioned above, this path joins with the path from Ayios Theodoros *Palloura* to the east. Together these two paths appear to continue to the outskirts of the

village of Ayios Theodoros. The final Road Unit RU0444 ends where the path turns into a bulldozed forestry road.

This communication route is related to the settlement of Kato Koutraphas *Mandres*. Unlike interaction between *Mandres* and Galata that took place via the main Evrychou road, RU0436, RU0437, RU0440, RU0441 and RU0444 linked the seasonal settlement of Kato Koutraphas *Mandres* to Ayios Theodoros (*cf.* Given 2000: 224; Ionas 1988: 20). I suggest that this was the route taken between these villages for the transportation of grain and movement of goats. Likewise this communication route made it possible to move resources from the area around Ayios Theodoros to the plains. After the forest demarcation villagers were required to obtain permits to collect wood in the forest. In an archival document from 1922 the people of Ayios Theodoros, Kato Koutraphas *Mandres*, Evrychou and those villages within the Adelphi Forest were given permission to collect dead and dry wood from within the forest boundary (Red 69 SA1/1922/1; SA1/672/1921). Collecting wood from the forest to sell to villages on the plains was a common occurrence throughout the survey zone (Panayiotis Loppas interviewed by Given 2001; Kostas Benaki interviewed by Given 2001; Theodoulos Theodoulou interviewed by Hadjianastassi 2003). Kostas Benaki who lived in Kato Koutraphas *Mandres* remembers travelling from his village into the forest to collect pinewood that he and his father then transported by donkey to Zodia near Morphou where it was sold (interviewed by Given 2001).

It is safe to assume that movement of people from the plains into the mountains to extract wood started much earlier than there is material or ethnographic evidence for. Accounts from the Medieval Psimolophou Estate, for example, suggest that an infrastructure was put into place to facilitate the extraction of resources from the forest (Richard 1947: 121-153). Men were hired to watch over the estate's supply of building wood in the forest while forest roads were constructed to extract the wood. Shepherds watched over forest cattle, sheep and goats in the estate owned forest. In this case the estate extracted wood from the forest for the estate's use while having the option to sell any excess for a profit. Psimolophou Estate constructed roads and paths on their land in the forest using digging axes.

These paths probably looked similar to RU0436, RU0437, RU440, RU0441 and RU0444 (Richard 1947: 121-153).

Ayios Theodoros *Palloura* and Ayios Theodoros *Pano Atsa* are foothill structures whose form suggests that they did not function as goat folds but instead as storage facilities. I suggest that these structures were seasonal and functioned as a collection posts or *metochia* for estate-owned wood during the Medieval-Ottoman period. Like in later periods, donkey, oxen or carts could transport wood stored here to sell to villages and estates located to the north on the plains that did not have access to wood. Estates located on the plains to the north of the survey zone at Petra, Kato Koutraphas and possibly Kato Koutraphas *Mandres* were most likely to own estate land within the Adelphi forest.

5.3.2 Forest demarcation and communication

Some paths within the Mandres Survey Zone parallel the forest boundary. Road Unit RU0431 was located through transect survey of private land located to the northwest of the village of Ayios Theodoros. This path skirts the western part of the forest boundary (Figure 5.20). Today a goat herder takes goats from the fields in the outskirts of Ayios Theodoros into the Adelphi Forest near Ayios Theodoros *Pano Atsa* using this path. In general, Road Units RU0431 through RU0434 do not unnecessarily enter the State Forest; instead the path carefully travels between the cultivated land to the north and the mountains to the south until it reaches Ayios Theodoros *Pano Atsa*. Just to the south of this abandoned structure the goat herder quickly moves his goats up into the forest via one of the gully roads that were formed primarily for forest extraction within the last 50 years (RU0449).

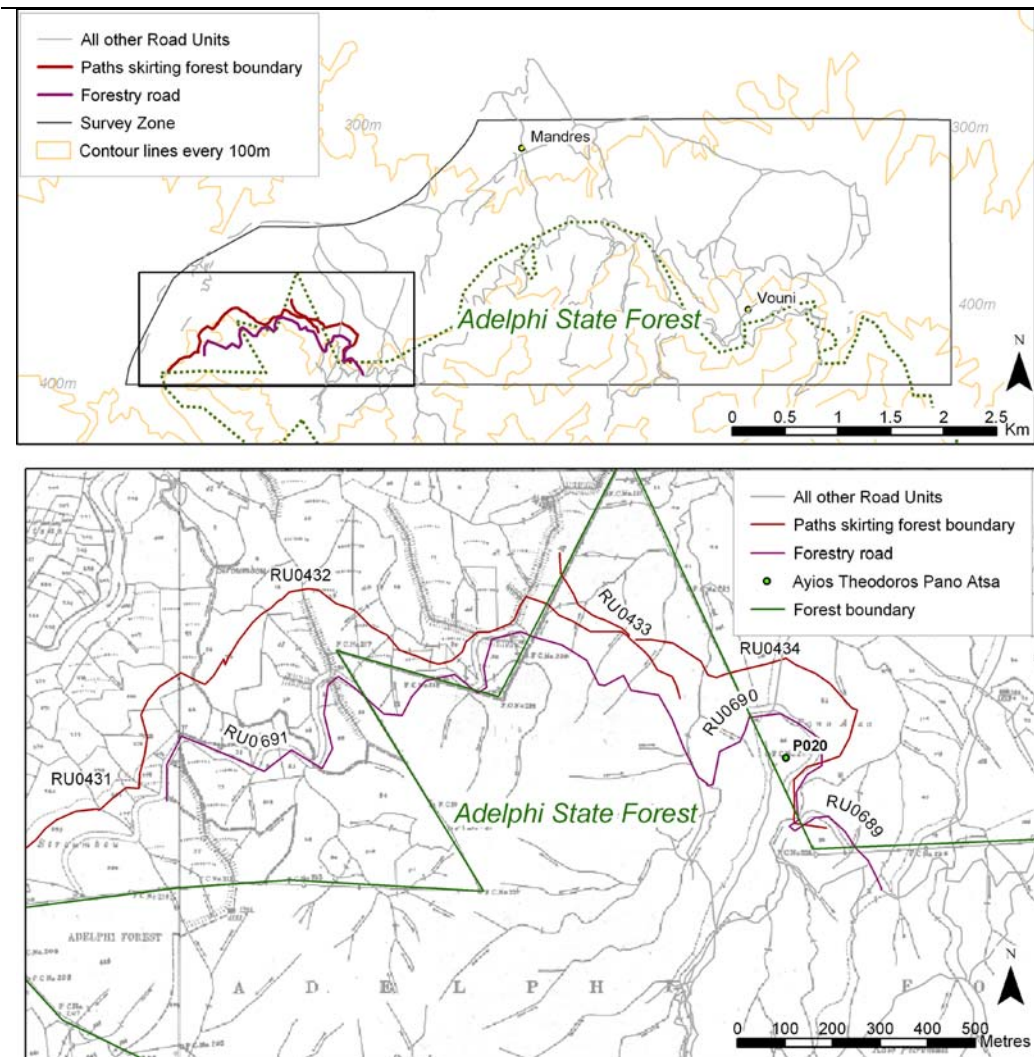


Figure 5.20: Path RU0431-RU0434 skirting the forest boundary.

These Road Units consist of a main path and a series of more heavily braided trails. While the goat herder travelled on the main path the goats wound their way through the surrounding undergrowth grazing as they moved. This morphology suggests that the main path originally functioned as a footpath that was later modified by goats.

The Forest Law of 1879 and the Forest Delimitation Law of 1881 established that goats were no longer allowed in the State Forest to graze (Thirgood 1987: 105-114; Given 2002: 16). Forestry cairns placed along this boundary signalled to villagers where the forest started and ended. Although the law was passed, it was very difficult to impose, and in 1933 the government was still trying to get the goats out of the Asinou Valley (SA1/444/1933). It was only in the early 1930s, when new forestry roads were built and the old roads improved, that access to the

forest enabled Forestry Guards to implement those laws that were passed 40 years before (SA1/444/1933). It was only possible to fully enforce the goat grazing laws after the forestry road (RU0689-RU0691) was constructed (Figure 5.20).

Although the path RU0431-RU0434 was originally intended for foot traffic or pack animal, when the forest road was constructed the route expanded to accommodate goat herders moving their flocks between grazing land in the foothills to the plains or illegally into the forest. The path was first used prior to the Forest Delimitation Law (pre 1881-1930), while the current path with its crisscrossing goat tracks can be tentatively dated to the post 1881-1930 period.

Abandoned structures and villages in the foothills and their associated roads and paths provide evidence that this transitional zone between forest and plains was a focal point for activity. During the British Colonial period the foothills became an area of tension where people who lived and used the forest were confronted by new rules and symbols of control that cross cut long established communication routes. In the Mandres Survey Zone villagers chose to ignore the demarcation of the forest – resisting the new laws and their associated forestry cairn markers by continuing to collect wood and graze goats in the forest (Given 2004b: 83-92).

5.4 The mountains

The Adelphi State Forest is criss-crossed with roads and paths. Communication routes ascend ridges, valley sides and gully bottoms. In this part of the survey zone there is a strong link between the morphological characteristics, location and function of Road Units.

Roads and paths surveyed in the mountainous region of the Mandres Survey Zone lie between the 400 and 550-metre contour. There are two types of roads located in the mountains: those that provide access to the forest for fire prevention, and those that are used to extract forest resources. Although these late British Colonial period roads are after my period of direct interest, I nevertheless include them in my discussion because they influence my interpretation of older communication routes.

Firebreaks and access routes were built in the forest as part of a new forest development policy that began in the 1920s but only became firmly established in the 1950s (SA1/1159/1920 Red 27). The forest road building policy between the years of 1920 and 1950 was influenced by a series of economic crises including the drought of 1932-1933, the declining welfare of the Cypriots between 1920 and 1930, and the economic pressures of the Second World War (Angelides 1996: 214-215). Road building in the forest was a way of providing economic relief to villagers while establishing access routes to extract forest resources for the war effort and local market (SA1/632/1927). In 1933 relief labour constructed forest access roads in Asinou. These roads were specifically constructed to access the forest for fire prevention, the extraction of wood and to provide access to the church of Panayia Phorviotissa (SA1/444/1933). The majority of forest access roads in the Mandres Survey Zone date to this period or later.

The roads that provide access to the forest are morphologically different from those constructed primarily for the extraction of timber. The width and surface stability of these roads reflect both the equipment used to construct them and their overall function. Because fire-fighting equipment such as bulldozers and water pumping trucks require widths greater than everyday road traffic, access roads have widths that average 3.9 metres wide (n=21). As most of these roads were built and maintained by road grading equipment their surfaces are composed of unstable dirt and gravel with little vegetation.

Access roads often follow pre-existing paths. One of the best examples of this is located just to the south of the survey zone where the path and forestry road follow the same topographic contour line and therefore follow the same route (Figure 5.21).

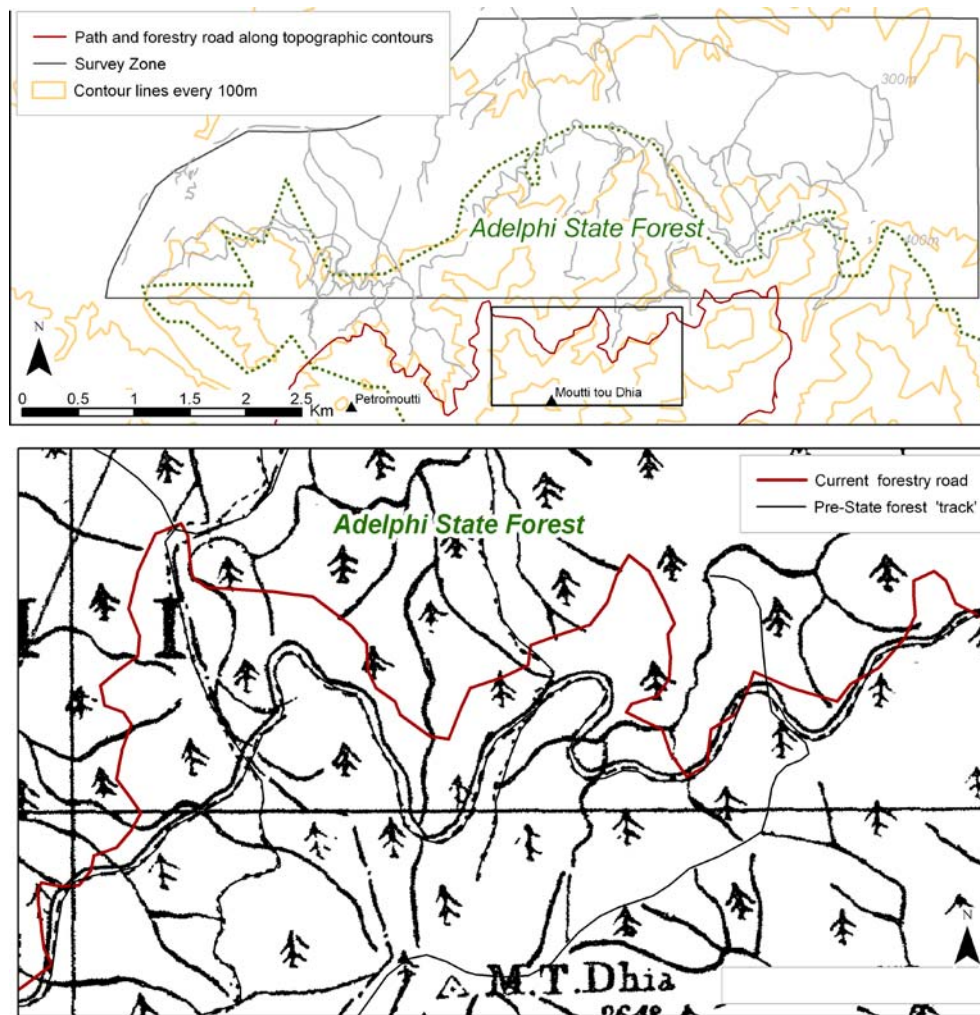


Figure 5.21: Forestry access route and path pre-modern period track following mountain contours.

Unlike roads that provide easy access to the forest and its resources, extraction roads are located in areas that are hard to reach, such as the base of gullies. These roads are consistently two metres wide ($n=22$), have rough surfaces formed by bulldozers and were not intended for long-term use. Instead these roads were constructed for the immediate extraction of wood. Forestry documents state that logs felled on mountainsides were rolled down the mountain slope to accumulate in the base of such gullies. From here the logs were loaded onto trucks or carts: “it was not uncommon to see a lorry manoeuvring between the trees down a precipitous unroaded [*sic*] mountainside, to be loaded and driven down a dry rock-strewn torrent bed” (Thirgood 1987: 141). Gullies are naturally eroding environments. Extraction roads located in gully bottoms are often washed free from soil. Where soil is present these roads are colonised by trees and dense shrubs like myrtle and terebinth.

Where extraction roads are found alongside paths I suggest that the paths too are related to the extraction of wood. Timber taken from the forest prior to the twentieth century bulldozing of extraction roads was transported by path (Thirgood 1987: 141). As discussed previously, villagers of Kato Koutraphas *Mandres*, *Evrykhou*, *Nikitari*, *Ayios Theodoros* and *Nikitari Asinou* transported wood from the forest via paths that linked the plains and mountains. Once forestry access roads and wood mills were constructed timber was transported to the mills then onwards to market by two wheeled mule carts.

The spatial relationship between extraction roads and extraction paths is illustrated below (Figure 5.22).

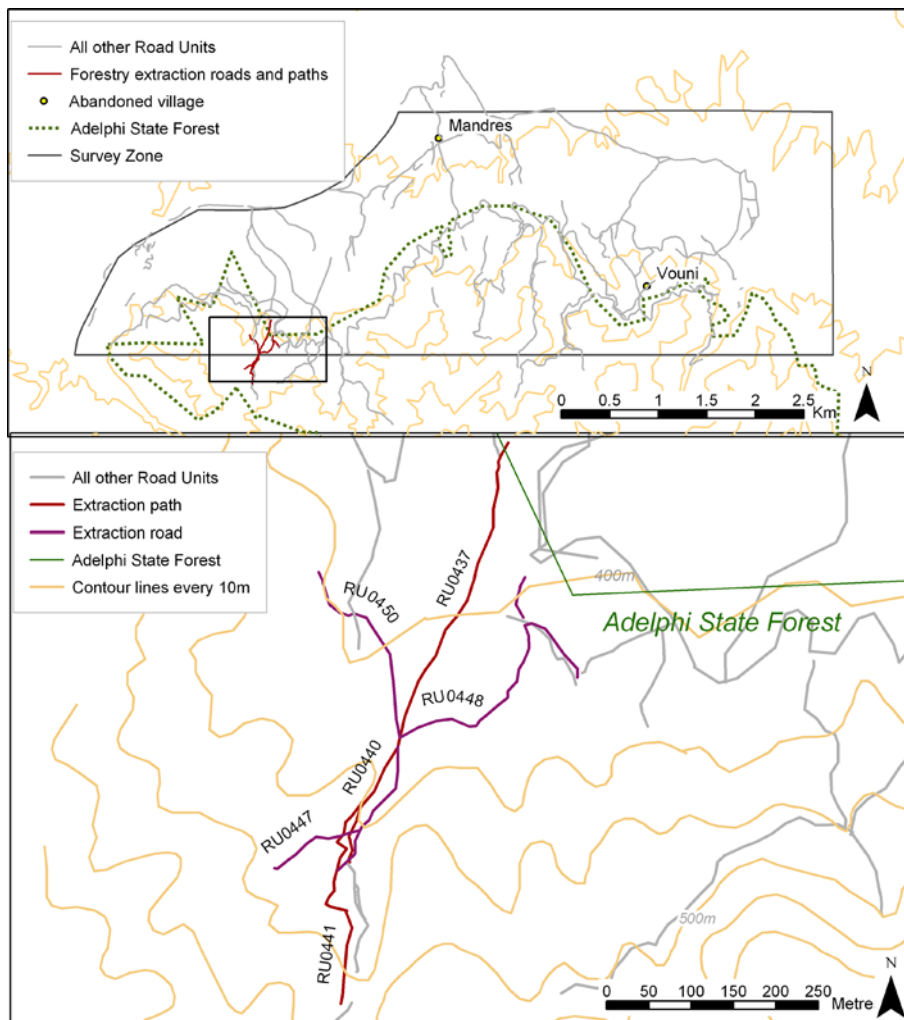


Figure 5.22: Spatial relationship between forest extraction paths (RU0437, RU0440, RU0441) and extraction roads (RU0448, RU0450, RU0447).

This path (RU0437, RU0440, RU0441) was previously discussed with reference to its relationship to the storage facility of Ayios Theodoros *Pano Atsa* located along RU0437 to the north of the above map (see Figure 5.19). There are two main factors influencing the relationship between the extraction path (RU0437, RU0440, RU0441) and the extraction road (RU0447, RU0448, RU0450). Firstly, regardless of the type of transport used there are certain practical elements, such as forest accessibility, that influence which timber is extracted and how it is transported. Secondly, I believe that roads were constructed to facilitate the extraction of wood from areas that were already known to be accessible and have good timber. Those people who built the extraction roads and cut timber were people like Kostas Benaki and Panayiotis Loppas who as children moved to and from the forest along paths like RU0437, RU0440 and RU0441, collecting dry wood and when necessary illegally cutting timber.

Analysis of the spatial relationship between paths and extraction roads helps to date the path (RU0437, RU0440, RU0441). When the bulldozer constructed the extraction road up the gully (RU0447, RU0450 and RU0448), it left a ridge of sediment at either end of the bulldozer blade that cross cuts the surface of the path (RU0437, RU0440, RU0441) thus dating the path to the period before the extraction road. The path surface has not been maintained since the construction of the extraction road. Therefore that the path fell out of use prior to the construction of the extraction roads. The path's final use is dated to period preceding the forest development and reforestation of the 1940s when much of the forest extraction in the mountains slowed or finished (Thirgood 1987: 190-193).

5.5 Communication routes

Three main communication routes come together in the mountains of the Mandres Survey Zone (see Figure 5.23). Most of these routes are composed of both roads and paths. Route 1 and 2 link the plains and foothills of the survey zone to the mountains of the Adelphi State Forest. Route 3 located to the south of the survey zone facilitates interaction between the Kourdhalı and Asinou River Valleys.

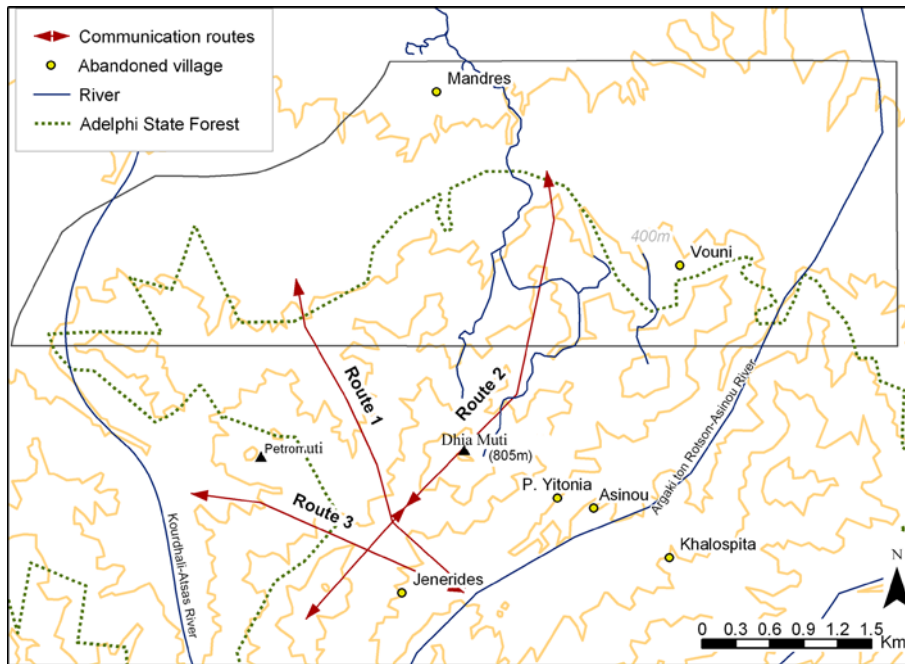


Figure 5.23: Mountain communication routes (Routes 1, 2, 3) in the Mandres Survey Zone.

5.5.1 Route 1

Route 1 links the plains and foothills to the mountains. This route travels from the plains southwest up a river valley that runs off Dhia Muti to cross the saddle between Petromoutti and Dhia Muti. This route merges with Route 2 and Route 3 on the ridge to the southwest of Dhia Muti.

This route was not block surveyed past the ridgeline because it crosses over the southern limit of the survey zone. The course of this route was reconstructed by tracing its roads and paths from the topographical map. Using topographical maps in this way makes it possible to comment on the function of routes within the survey zone even though it was not possible to block survey them directly. The paths traced from the topographic map are shown as dashed lines in Figure 5.24 below and are labelled as ‘sketched path’.

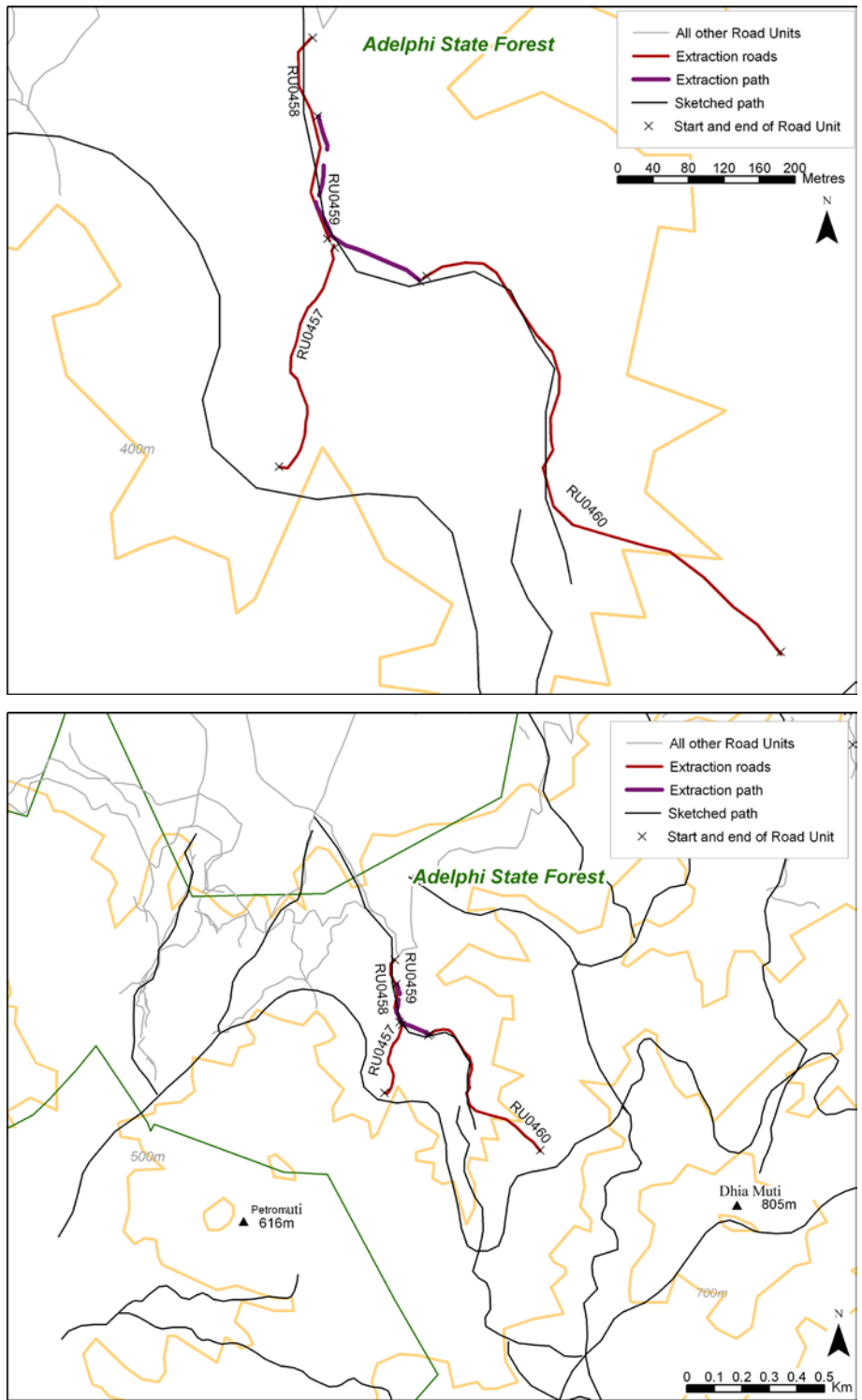


Figure 5.24: Route 1 consisting of extraction roads RU0457, RU0458, RU0460 and path RU0459 including sketched path.

This communication route is composed of four Road Units that include both roads and paths. The northernmost Road Units of this route are associated with a spring and forestry water tank. Forestry access roads RU0458 and RU0460 are consistently 2.8 metres wide and skirt the side of streams, while extraction Road

Unit RU0457 is located in a streambed. Its width (1.8 metres) is limited to the confines of the water channel. A path (RU0459) travels along the side of the river valley above the other three Road Units. This path is unstable with a width of 65 cm. The stability of the path has been increased by a hosepipe dug into its inside edge. This pipe originates at the water tank and is likely related to forest fire prevention.

Cadastral plans show that Road Unit RU0459, RU0458 and much of RU0460 follow the route of older paths. Even though one must acknowledge that the accuracy of paths digitised from the topographic and cadastral plans is variable, the exact position of these individual Road Units is not vital for the interpretation of this communication route.

One handle from a Hellenistic to Roman period casserole was found on the southernmost segment of forestry access road RU0460. It is difficult to determine whether this handle was originally deposited on the surface of an earlier path or if it came from sediment upturned through bulldozing of the access road. This sherd was found in isolation and therefore was not part of a larger pottery concentration. Instead, the handle was likely deposited by chance through activities such as travelling or temporary camping.

Road Unit RU0459 corresponds to the path shown on a cadastral plan destined for the village of Petra located on the plains to the north of the survey zone. This connection to Petra is known ethnographically as it was the place that people from mountain villages like Ayios Theodoros and Nikitari *Asinou* sold pinewood collected from the forest in return for bread or took their barley to be milled (Panayiotis Loppas interviewed by Hadjianastassi 2003; Christos Ioannou interviewed by Hadjianastassi 2003).

5.5.2 Route 2

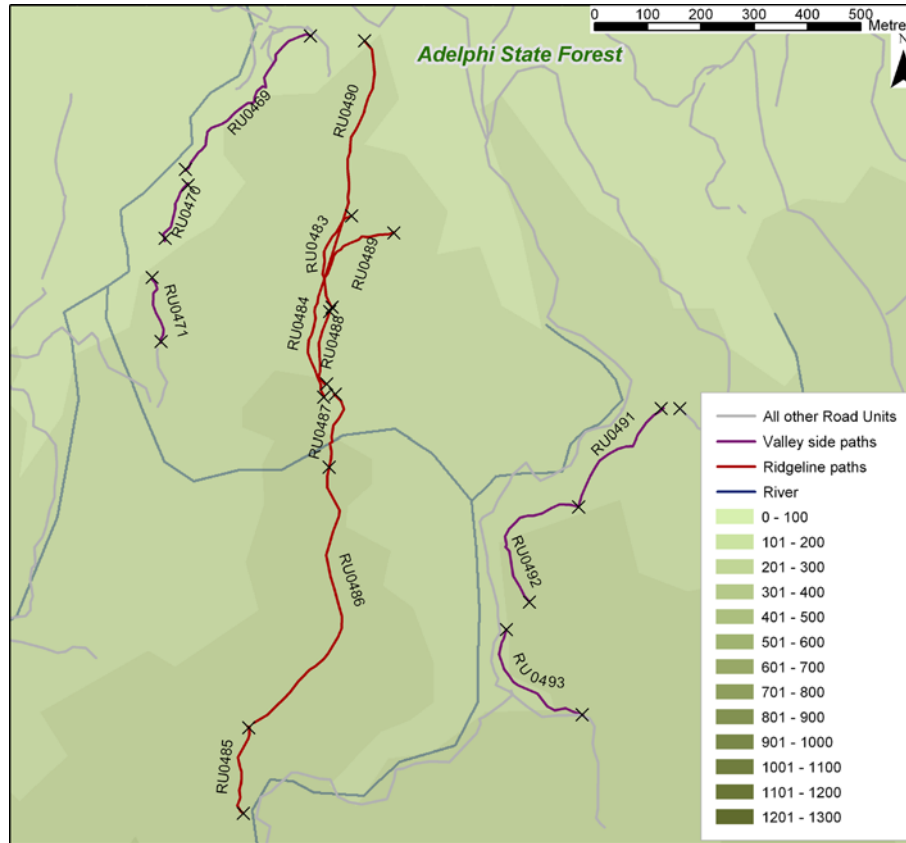


Figure 5.25: Route 2 composed of ridgeline path RU0483-RU0490 and valley side paths RU0469-0471 and RU0491-RU0493

Route 2 (Figure 5.25) is a north-south route linking the plains, foothills and mountains. Three individual paths make up this route: two follow the sides of valleys while one is a ridge path. The most extensive and well-preserved path in this communication route ascends a spur to run north-south along a mountain ridgeline (RU0483-RU0490). This ridgeline path is shown in the centre of Figure 5.25 and travels southward to the peak of Dhia Muti where, according to Panayiotis Loppas (interviewed by Gibson 2003), many paths merge and diverge. Unfortunately terracing and reforestation on the slopes of Dhia Muti have destroyed physical remains of these paths.

The ridgeline path does not travel along the apex of the ridge. Instead the path alternates between either side of the ridge. Like ridgeline paths found in the North

Palekhori Survey Zone, the path only travels along the apex of the ridge when a significant gain in elevation is necessary. It is logical that paths were constructed on the most sheltered sides of mountain ridges to provide stability to the path surface while giving travellers protection from rain and wind. Unfortunately little information is available on the local climatic conditions or prevailing winds to enable me to elaborate further on the relationship between the location of paths and the most sheltered sides of mountains.

Six unstable Road Units (RU0469-RU0471 and RU0491-RU0493) make up the two paths that skirt the valley sides of this communication route. Shown in Figure 5.25, these Road Units are located in the valleys to the west (RU0469-RU0471) and to the east (RU0491-RU0493) of the ridgeline path. The instability of these paths is likely the result of a combination of interrelated factors including erosion by water, physical disturbance by bulldozed forestry roads and differing vegetation cover. Preserved segments of path such as RU0491-RU0493 are found upslope of gullies (often the focus of water erosion and bulldozer activity). Vegetation located on the surface of valley and gully paths consists mainly of cistus. Although these shrubs indicate a certain level of stability, it does not in itself provide significant cover to shield soil from erosion. Even though the valley and ridge paths are part of the same communication route, when their stability is compared it is clear that these paths were influenced by cultural practices such as path maintenance.

I expected that Road Units from valleys and ridges would have different degrees of stability based on the slope of the surrounding landscape and the slope of the path surface. Comparison of ridgeline paths and valley side paths belonging to this communication route showed that Road Units belonging to the ridge path were more stable than those located along valley sides even though their slope was greater.

To test this further Road Units from areas outside this communication route were included in this calculation resulting in a similar result. Of the 10 Road Units that travel along ridgelines in the survey zone 70% are stable with 30% unstable in comparison to the 12 Road Units located along valley sides that consist of 41%

stable and 58% unstable Road Units. Thus there is not a direct relationship between path stability and path slope. Instead stability is a result of maintenance activities and the overall function of these paths in the daily interactions of those who used them.

This communication route was used for three different types of movement: long distance travel, shorter distance travel between villages and resource-related movement. Ridges are the most effective means of travelling long distances. The primary function of the ridgeline path was to facilitate quick and efficient movement through the landscape. Travel up spurs and along ridgelines enabled one to gain elevation quickly while maintaining this height with minimal exertion. The ridgeline path discussed above is shown both on topographic and cadastral ‘two inch to one mile’ maps. This path was digitised from the topographic map and is shown as a dashed ‘sketched path’ in Figure 5.26 below. From the map this path appears to follow the ridgeline southwest past Dhia Muti.

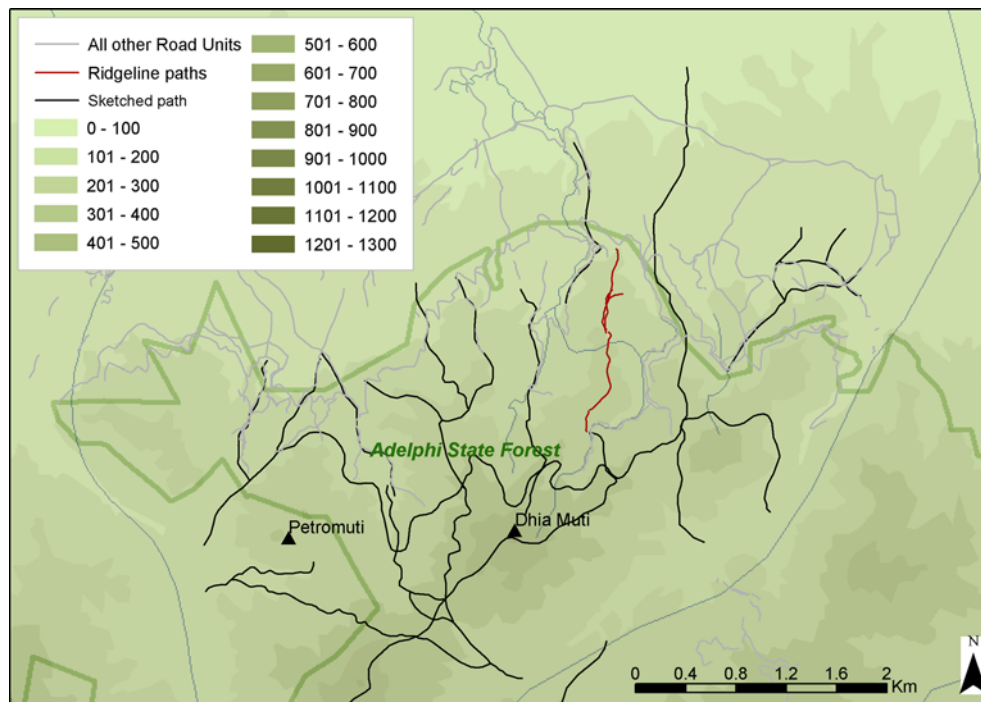


Figure 5.26: Ridgeline path (shown as ‘sketched path’) with tentative trajectory southwest of Dhia Muti.

Steep and often unstable gullies dominate the mountains of the Adelpi forest. Ridgeline paths offer the most efficient and effective method of moving through topographically varied environments. The better-preserved and more stable

character of these Road Units suggests the importance of this ridgeline path for long distance travel. Such paths were valuable; their maintenance ensured continued north-south communication linking people from the plains, foothills and mountains. Secondary paths branch off from this ridgeline path to provide access to both the Asinou and Kourdhali valleys.

The valley side path RU0469-RU0471 to the west of the ridgeline path is most likely related to resource extraction (Figure 5.24). This path ends just as abruptly on the cadastral plan as it did during block survey. The abrupt end to this path suggests that its primary purpose was the extraction of forest resources and not communication further inland. Interestingly a cadastral plan labels this path as a track to Kato Koutraphas *Mandres* Village. As discussed previously, Kato Koutraphas *Mandres* was one of the villages given permission to collect dry wood from the Adelphi Forest in the early 1920s (SA1/1922/1 Red 69). It is possible that this path was constructed or at least re-used in the 1920s for wood collection.

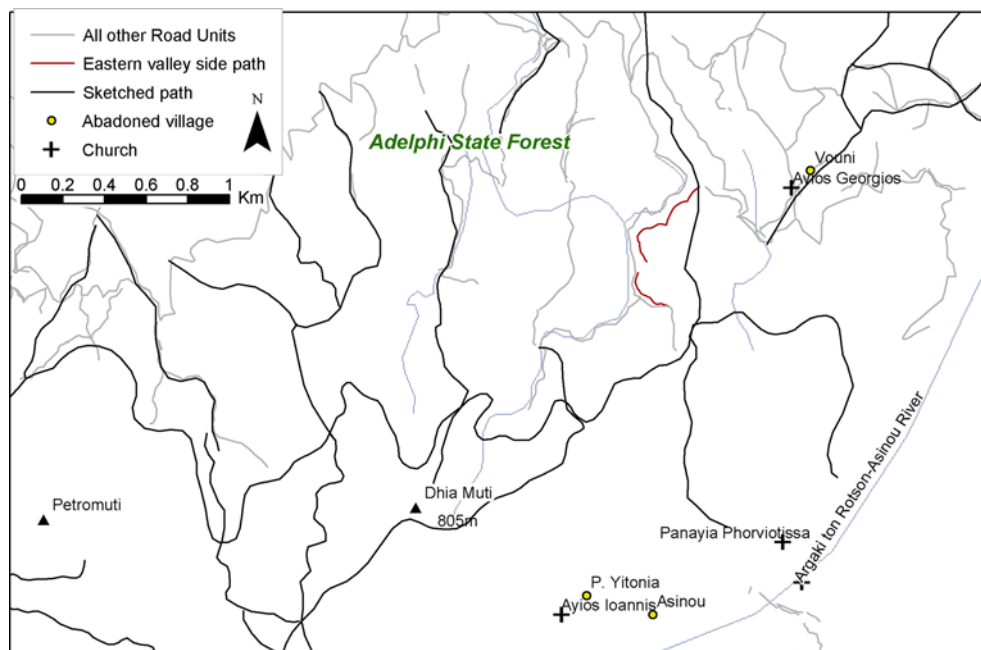


Figure 5.27: Nikitari Vouni to Asinou Valley Communication Route

The second valley side path (RU0491-RU0493) to the east of the ridge path facilitates interaction between the now abandoned village of Nikitari *Vouni* and the Asinou River Valley to the south (Figure 5.27). The northernmost segments of this path are not represented on the two inch to one mile map. Instead the path shown on the two inch to one mile map takes a ridge route and emerges near the

southernmost extent of the surveyed path. This path appears to link Nikitari *Vouni* with the west side of the Asinou River near Panayia Phorviotissa Church (Asinou Church). In the early twentieth century vegetables and halloumi from Nikitari and Nikitari *Asinou* villages were sold in villages on the plains such as Astromeritis to buy goods unavailable in the mountains like wheat and bread. As discussed previously, these economic relationships between villages in the mountains and the plains were long established relationships that likely originated during the Medieval-Ottoman period when the mountains were more densely occupied (Grivaud 1998: 469; Given *et al.* 2002: 32-34).

The path RU0491-RU0493 facilitated communication between Nikitari *Vouni* and the Asinou Estate. Communication associated with the monastery and estate at Asinou is relevant to this and adjacent communication routes. The centralised control of the mountains and foothill region of the survey zone by the estate and later monastery at Asinou influenced the construction, use and maintenance of communication routes. Resources such as timber, firewood, charcoal, resin, pitch, ladanum, *beccaficoes*, garden produce and goat products were collected from the estate lands that included the land adjoining the Asinou River Valley and further south into the Argaki ton Rotson River Valley. Communal facilities offered by the estate include one mill located on the Asinou River and the church of Panayia Phorviotissa.

In 1115 the self-appointed first abbot and estate owner Nicephorus expanded the church of Panayia Phorviotissa and converted it into a monastery (Stylianou and Stylianou 1985: 117). As abbot, Nicephorus administered the monastery and its estate lands. A grange associated with the monasteries usually stored all produce collected by the monks from the estate holdings. It is uncertain if the structures located by TAESP include the remains of this grange (*cf.* Given *et al.* 2002). The abbot of Asinou sent his fellow monks to supervise the harvesting and collection of estate crops. This often meant that monks had to travel long distances to ‘daughter houses’ or those storage areas at a distance from the monastery (Coureas 2003: 107). The monastery was in charge of maintaining communication routes and trade networks with which to collect produce from its estate lands and

to sell any surplus to estates in the plains to the north that may have limited access to forest resources.

5.5.3 Route 3

The third mountain communication route (Figure 5.28) is shown as a dashed line located to the south of the survey zone and links the village of Ayios Theodoros to the Arkaki ton Rotson River Valley along a northwest-southeast trajectory. Route 3 bisects the ridgeline path belonging to Route 2 at a saddle between Petromoutti and an unnamed mountain to its southwest. As this route lies outside of the survey zone, observations come from a combination of survey reconnaissance, cadastral plans and ethnographic information. The main path that makes up this communication route was renovated as a tourist trail by the Forestry Department.

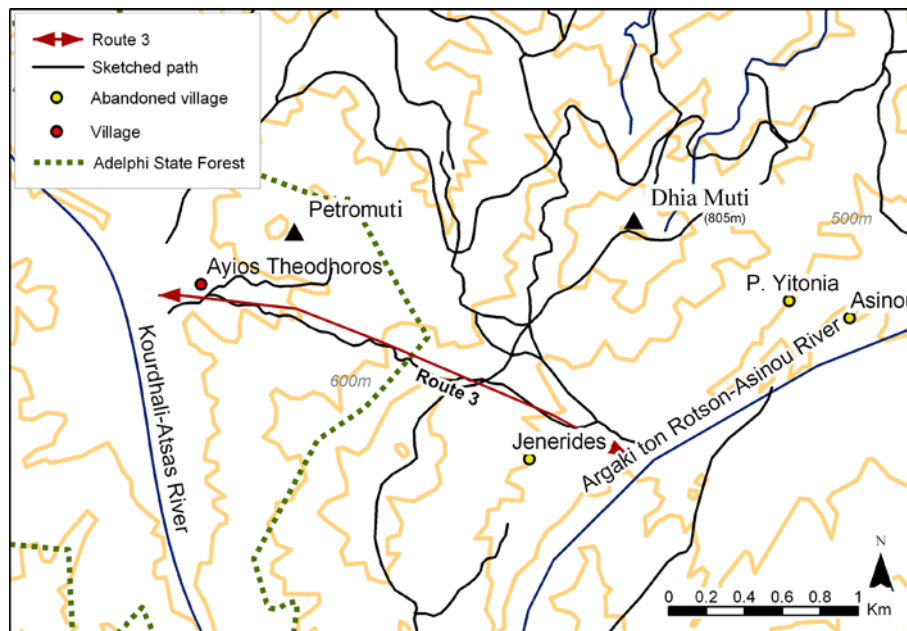


Figure 5.28: Route 3: Ayios Theodoros to Argaki ton Rotson River Valley

Social and economic interaction between Ayios Theodoros and the Argaki ton Rotson River Valley took place via this communication route. Trade between the villages of Ayios Theodoros, Nikitari *Asinou* and the settlement of Nikitari *Mandra tous Jerenides* was common in the nineteenth and twentieth centuries. The village of Nikitari *Asinou* sold halloumi to Nikitari and other villages on the plains while Nikitari *Mandra tous Jerenides* sold its cheese to the villages of Kakopetria, Galata, Ayios Theodoros and Evrychou (Chrysostomos Georgiou interviewed by Hadjianastassi 2004). A path to Nikitari *Mandra tous Jerenides*

branches off the ridgeline path and Route 3. Links between the villages of Ayios Theodoros and Nikitari *Mandra tous Jerenides* included ties of marriage and therefore journeys taken along this path often included visits to see relatives (Chrysostomos Georgiou interviewed by Hadjianastassi 2004).

5.5.4 Where the routes intersect

The three mountain communication routes cross at the saddle to the southwest of Dhia Muti. As discussed previously, saddles are topographic areas which offer the opportunity to choose alternative routes for movement. Here paths branch down spurs and ridgelines to valley bottoms. The locations of these branching paths reflect the topographic constraints of the landscape as well as the decision-making process. Figure 5.29 displays a large triangular intersection where Route 3 and Route 1 bisect the predominantly ridge-based communication Route 2. This intersections form provides information about interaction on a local and regional scale as people move across this saddle.

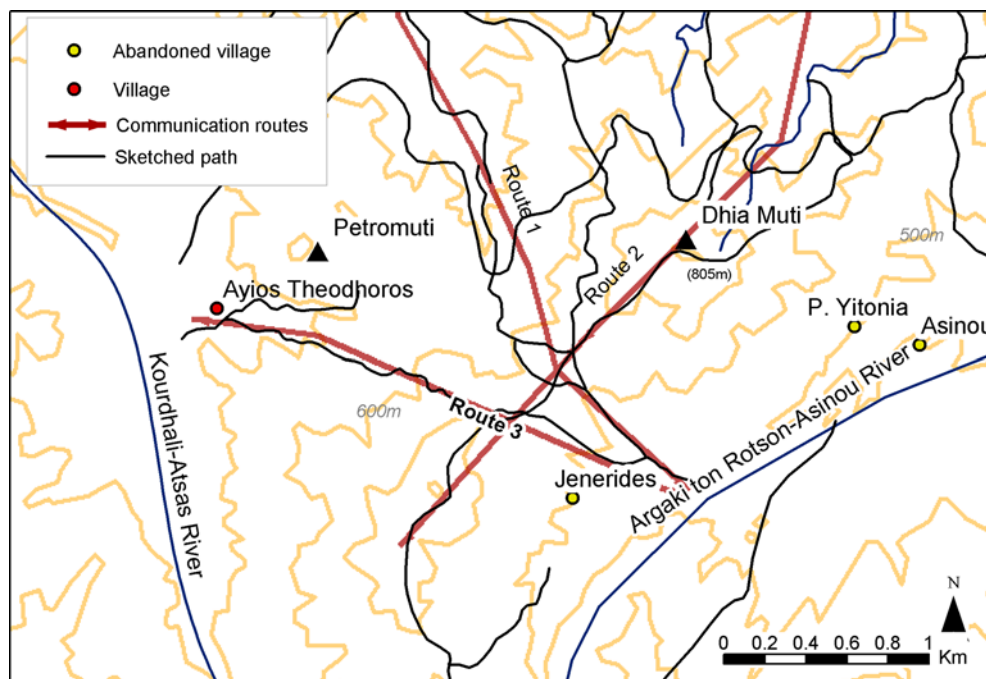


Figure 5.29: Intersecting communication routes at saddle to the southwest of Dhia Muti.

While the ridge-based communication Route 2 maintains its northeast-southwest course through this intersection, Routes 1 and 3 merge into a single route to the southeast. Traffic focuses predominantly on the Argaki ton Rotson River Valley. Although Routes 1 and 3 cross or merge with the ridgeline Route 2 they do not

alter its course. Instead extra segments of path were added to facilitate movement along the ridgeline path where Route 1 and Route 2 cross. These small segments made movement through the saddle more flexible. It is possible that these alternative paths were constructed because of erosion or path instability, especially those that followed along the sides of gullies and rivers. Obviously the traffic flow between Route 1 and Route 3 was significant enough to warrant separating paths down the spur to the Argaki ton Rotson River. These two independent paths to the river prevent unnecessary doubling back to follow ridge Route 2.

This intersection is made up of routes from different periods. Route 2 is related to the earlier pre-Medieval settlement in the northern part of the survey zone up the Argaki ton Rotson River at sites such as: Nikitari *Mandres ton Rotson* (SE0030) and Nikitari *Khalospita* (SE0029/TP250) Nikitari *Trimitheri* (TP220) (Gibson and Robins 2003; Sollars 2005). Routes 1 and 3 crossed over Route 2 during the Medieval to Ottoman periods when interaction between the Kourdhali and Argaki ton Rotson River Valleys increased. This increase in interaction corresponds with the predominantly Medieval to Ottoman period occupation in the northern parts of the river valley. There is both material and documentary evidence for Medieval to Ottoman period occupation at Nikitari *Asinou*, Nikitari and Ayios Theodoros.

Intersections both influence and are influenced by, human interaction. In this mountain landscape the intersection directed the flow of traffic crossing the saddle where individuals were forced to decide upon a route. Smaller linking paths were built to enable individuals to move with minimal difficulty. These small interlinking paths are a feature characteristic of older intersections where repeated interaction and decision making creates increasingly complex alternatives to moving through the landscape.

5.5.5 Dating the routes

It is safe to assume that communication routes located in the mountains date to the same periods as the settlements with which they were associated. Pottery, architecture and historical records from the permanent settlement of Ayios

Theodoros and the abandoned settlements of Nikitari *Vouni*, Nikitari *Aspri*, Nikitari *Asinou*, Nikitari *Mandra tous Jerenides* and Kato Koutraphas *Mandres* date from the Medieval to Modern periods (Grivaud 1998: 466-470; James 2001; Ireland 2002). As mentioned above, there is evidence for pre-Medieval settlement up the Argaki ton Rotson River Valley.

In the nineteenth century many of the once permanent mountain settlements such as Nikitari *Asinou* and Nikitari *Jerenedes* turned into seasonal settlements. This change from permanent settlement to seasonal settlement is entwined in changes in interaction that occurred alongside the Forest Delimitation of the nineteenth century (Given 2002: 7-8).

The imposition of boundaries separating forest land from agricultural land had dramatic effects on the way that people interacted. People that came to the mountains to collect resources, graze goats, and visit family moved under the gaze of government officials. When Kostas Benaki (interviewed by Given 2001) from Kato Koutraphas *Mandres* was asked about the forest guards and collecting wood, he said, “They checked that you cut only dry wood, not green wood. You would have to pay a fine if you were caught getting green wood, but you would still go out at night to get the green wood”. I suggest that at this time people became cautious about moving into the forest and as a result altered their communication routes to avoid the watchful forestry guards. This is probably the case in the foothills where paths self-consciously weave in and out of forestry cairns. Although these paths likely originated in the pre-British period, their course suggests a close association between the location of the path and the forest regulations.

Settlements within the Adelphi forest were abandoned due to a combination of factors: forest demarcation, regular enforcement of the boundary between forest and private land, and the Forest Development Plan. The Ten Year Forest Development Plan was issued in 1950. Its purpose was to protect the forest from grazing and felling, while restocking the forest with “all the trees which the ground could carry” (SA1/556/1942 Red 9-8). Road construction was part of the plan to provide access to all areas in need of forest restoration. Mountain slopes

were bulldozed to provide flat surfaces for planting trees while cutting across the surfaces of many old paths. These bulldozing scars postdate the last functional use of paths such as those located near Dhia Muti. By the mid 1950s paths in the Asinou Valley, disturbed by terraces and new forestry roads, ceased to be a viable way to move through the mountainous region of the survey zone. Some segments of path never fell out of use but were used, as they are today, as hunting paths for seasonal partridge shooting.

5.5.6 Route maintenance

If paths were not tended in the past then they would not be still visible today. The most common tending practices included patching unstable sections of path and removing branches and stones from its surface. Maintenance was more important during certain times of the year than others. Erosion was more of a problem during the rainy winter and spring months, while moving goats between markets and grazing lands, transporting grain, wood, halloumi and vegetables to markets and fairs, travelling to wedding celebrations and *paniyiria* all placed added stress on these paths.

How such maintenance practices were carried out and who took responsibility for making sure they were completed is unknown. Those villagers that regularly travelled the routes could have completed day-to-day tending of the path. More substantial maintenance or path construction probably required a centrally organised and specialised work team. The previously mentioned 1318 account of axes for digging forest roads in the Psimolophou Estate suggests that road construction and possibly their subsequent maintenance was under the jurisdiction of the estate lord (Richard 1947). Therefore, the abbot of Panayia Phorviotissa monastery, the lord of the estates of Nikitari, Nikitari *Asinou* and Nikitari *Aspri* and in later periods the *mukhtari* of these villages, were likely all involved in maintaining old paths while expanding communication routes to serve the needs of the ever changing population. It was certainly in their best interest to ensure that goods were moved easily between their estate lands and their granaries and taxes were collected (*cf.* Given 2000: 218-227).

5.6 Interaction and movement

Interaction within the survey zone took place at different levels. Official interaction at the level of the lords of estates and government officials overlay the network of families, friends and co-workers. The communication routes located within the Mandres Survey Zone reflect these different levels of interaction.

Movement in the mountains took place via at least three main communication routes. Individual paths branched from these routes to access the Asinou and Argaki ton Rotson River Valleys to the southeast and the Kourdhali River Valley to the southwest. There appears to be long-established occupation and interaction within these two neighbouring valleys. The ruins of churches, structures and settlements suggest that the Asinou and Argaki ton Rotson River Valleys were the primary focus for interaction during the Medieval to Ottoman periods while remains from the pre-Medieval period are concentrated in the upper reaches of the Argaki ton Rotson River Valley.

Resource extraction had an enormous impact on interaction between the mountains, plains and foothills. Interaction between these areas for the extraction and trade of resources likely existed since the Roman period.

Late Roman period pottery associated with large roomed structures located in the heavily forested upper reaches of the Argaki ton Rotson River Valley suggest that logging camps were possible in the region during the Roman period. In similar regions of Rough Cilicia logging camps included both structures and roads that facilitated the extraction and transport of forest resources including timber, pitch and resin (Rauh n.d.). Copper smelting at Skouriotissa required vast amounts of fuel. The type and quantity of fuel involved in the smelting is currently under investigation by the Troodos Archaeological and Environmental Survey Project. Cedar and pine pit-props at Skouriotissa suggest that cedar, which is today confined to the western part of the island, was more widely dispersed in the Roman period and likely existed within the Mandres Survey Zone in the pre-Medieval period (Meiggs 1982: 136; Thirgood 1987: 72).

As mentioned earlier mountain estates and their villages sold forest resources such as timber and pitch to those people on the plains who lacked access to such goods while the plains were vital for grain supplies (Meiggs 1982: 206). During the Medieval period estates and monasteries especially in the Asinou Valley exerted control over this trade.

Concentrations of settlements, churches, checkdams and terracing in the Asinou Valley suggest that the area was heavily occupied in the Medieval period.

Activities associated with this settlement included church fairs or *paniyiria*.

Church celebrations were important places to sell and exchange goods while re-establishing bonds between villages, family and friends. According to

Chrysostomos Georgiou, the people from Ayios Theodoros travelled to a large fair at Asinou on Easter Tuesday where many people from different villages gathered (interviewed by Hadjianastassi 2004). For the people of Ayios

Theodoros *paniyiri* at Panayia Phorviotissa were important for re-establishing bonds with those kin living at seasonal settlements such as Nikitari *Mandra tous Jerenides*

Communication was drastically changed in the British Colonial period. The road building and forest demarcation policies sought to bring order to the island. In 1900 the road connecting Nicosia to the Troodos Mountains was completed and although regulations were meant to ensure a consistent road building policy with morphologically similar roads and bridges, these 'hard and fast' rules were seldom strictly applied. Instead personal preference, pride and regional differences played important roles in road construction and appearance. Similarly roads and especially bridges were areas where tensions between local population and government were played out. Forest demarcation was an attempt to protect the forest from the evils of goats and careless villagers. Communication routes played an active role in the power driven relationship between villagers and British Colonial officials.

6 The Akamas Peninsula Survey Zone

In the Akamas Peninsula communication routes are tightly linked to the economic and political circumstances of the peninsula. Terracing, quarrying, mining and timber extraction are fundamental to understanding the social and economic relationships involved in communication by sea and land in this survey zone, and therefore figure prominently in my interpretations of communication. The morphology and structural features of roads, paths, berths and harbours, are interpreted in light of these land use and settlement data. The following research questions are addressed through the analyses of transect and Road Unit data:

- Is there a relationship between sea-based communication routes and land-based routes in the Akamas Peninsula Survey Zone?
- What material evidence is there for sea-based communication, and what impact do they have on interaction in liminal areas like harbours?
- What is the relationship between road morphology, structural features and resource extraction?
- How is choice manifested in the material remains of communication routes?
- Can Medieval to Ottoman period interaction be implied from structural remains?

To address these research questions eight transects were placed at 500-metre intervals across the Akamas Peninsula. Once located by transect and reconnaissance survey, roads and paths were block surveyed. Within the survey zone 22 Places of Special Interest (POSI) were recovered. These POSI, which include both structural remains and evidence of resource extraction, are vital to understanding how interaction changes through time in the survey zone

The Akamas Peninsula is located in the most westerly part of the island of Cyprus. Covering an area of 14 km², today the survey zone lies completely within the

Akamas State Forest and Neochorio village territory. A general map of the Akamas Peninsula with the survey zone outlined in black is shown in Figure 6.1.

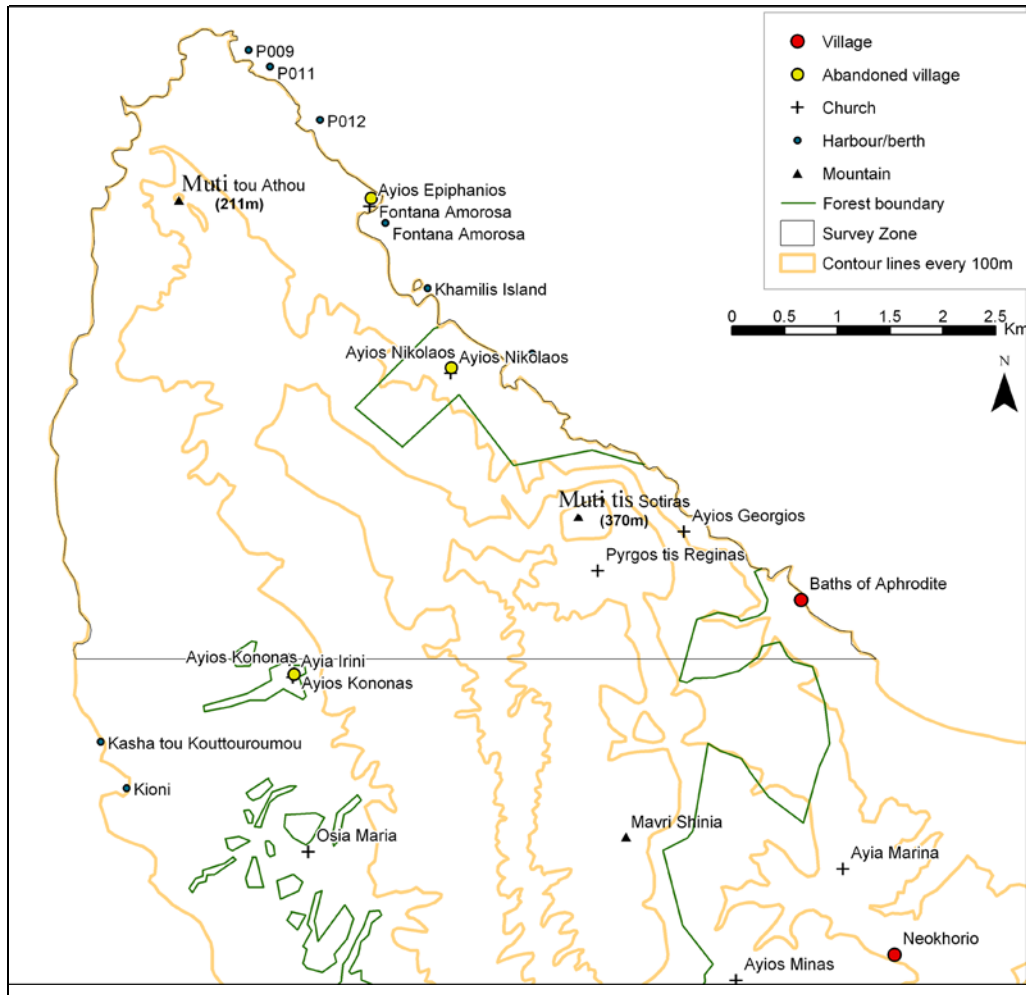


Figure 6.1: The Akamas Peninsula showing major settlements and harbours discussed within this chapter

The survey zone was chosen for its varied geography that includes both inland mountains and coastline. Positioned between volcanic and sedimentary deposits, the northwestern part of the Akamas is made up of volcanic or plutonic rocks while on the eastern coast these are overlain more regularly by calcarenite deposits. Volcanic Muti tis Sotiras and Muti tou Athou mark the division between eastern and western halves of the peninsula.

The geographically isolated nature of this peninsular landscape aids in preservation of settlement evidence, including pottery and architectural remains, while making it possible to address interaction on a regional scale. Work completed by Tønnes Bekker-Nielsen (1995; 2004) in conjunction with the Danish Akamas Project overlaps the Akamas Peninsula Survey Zone. His previous work on Roman roads in the region served as a starting point for this more systematic study of communication routes.

This chapter is divided into two main sections – ‘Landscape history discussion’ and ‘Communication routes’. The ‘Landscape history discussion’ (Section 6.1) of the Akamas landscape provides the settlement and land use context relevant for discussing communication routes. Unlike the other data chapters that are divided thematically, good preservation of archaeological remains in this survey zone enabled land use and settlement data to be incorporated within the chronological periods relevant to communication in the survey zone: Pre-Roman, Roman, Medieval, Ottoman and the British Colonial time periods. ‘Communication routes’ (Section 6.2) is subdivided into ‘Communication by sea’ (Section 6.2.1) that includes communication data from berths and harbours, while ‘Communication by land’ (Section 6.2.2) is illustrated through an inland communication route and a coastal route.

6.1 Landscape history

The history of the Akamas landscape provides the economic, political and cultural context for interaction. This section looks at the circumstances that influenced how people lived in the Pre-Roman to British Colonial time periods, those historical periods relevant to my interpretation of communication routes, by drawing upon historical and archaeological evidence including settlement and land use data collected through my own transect and Road Unit Survey. Archaeological data collected by projects working in the region such as the recent survey and

excavation work carried out to the southwest of the survey zone by the Danish Akamas Project provide a supportive framework for this study (Fejfer 1995).

6.1.1 Pre-Roman period

The Hellenistic period marks a time when settlement changed substantially in the Akamas Peninsula Survey Zone. Prior to the Hellenistic period pottery is sparse. A small concentration of Archaic-Classical and Classical-Hellenistic period pottery was found through transect and Road Unit survey in the interior of the peninsula at P015 *Kambos tis Katharis Eloeas* (Figure 6.2).

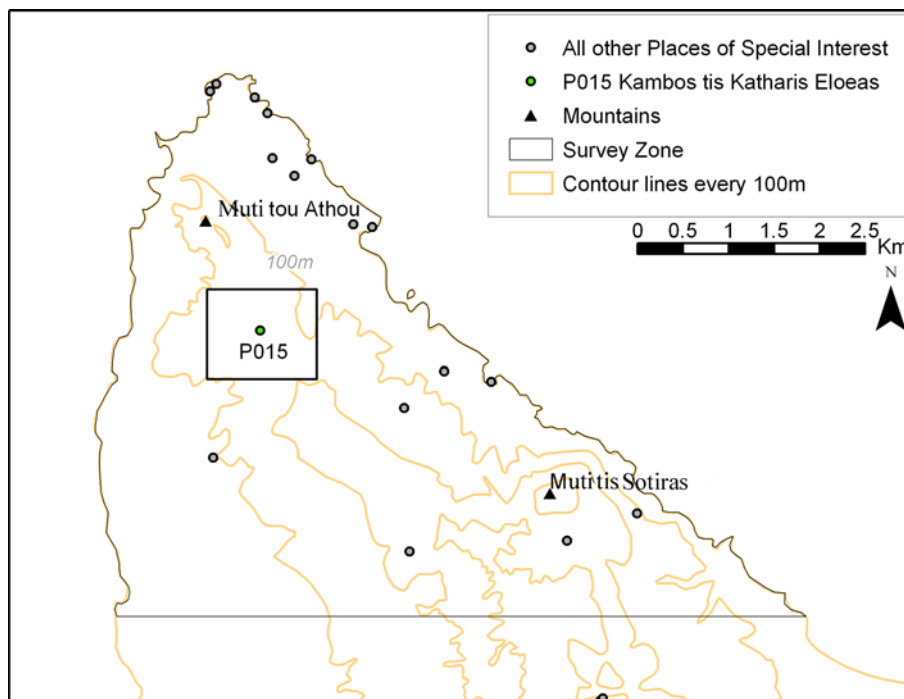


Figure 6.2: Pre-Roman evidence in the Akamas Peninsula at P015.

Past archaeological survey on the peninsula recovered pottery mainly from the Hellenistic to Roman period. My own survey found that Hellenistic pottery is lightly scattered throughout the survey zone, while Quilici (1971: 192) found similar distributions near Ayios Nikolaos on the east coast. To the southwest of the Akamas Peninsula Survey Zone, near Ayios Kononas Church, the Danish Akamas

Project found evidence of Hellenistic period pottery and a grave stele. Thus people lived, died and were buried on the peninsula (Fejfer and Hayes 1995: 65-68).

Timber extraction and farming appear to be the main forces that drew people to the Akamas peninsula during this period. Cyprus pine was of a quality ideal for shipbuilding (Theophrastus 5.7.1-2). Evidence for the past presence of pine forest in the Akamas comes mainly from Strabo (14.6.2) who states that the Akamas “is a promontory with two breasts and much timber”. His description of this timber as ‘ὄλην πολλήν’ can be translated either as much timber, scrub, undergrowth or bush (Thomsen 1995: 31). Today pine forest is located in the interior of the peninsula even though the coastal plains are dominated by maquis.

Cyprus played an important role supplying timber for shipbuilding during the Hellenistic period. Ptolemy’s main supplier of timber was Lebanon. When conflict between the Egyptian Ptolemies and the Syrian Seleucids cut Ptolemy off from Lebanon he turned to Cyprus to supply his shipbuilding requirements (Meiggs 1982: 145, 398).

The Ptolemies had an interest in the city of Marion, located to the east of the survey zone, which was conquered in 312 BC by Ptolemy I Soter and then refounded as Arsinoe by Ptolemy II (Childs 1999, 222; Diodorus Siculus XIX.79.4-79.5; Pliny Book V. XXXIII.127-XXXV.129). It is likely that during the Hellenistic period *Pinus brutia* grew in the lower reaches of the Akamas Peninsula. This type of pine was more common and easier to access than cedar or *Pinus nigra*, which were found inland and at higher elevations (Meiggs 1982: 118, 137). The Akamas Peninsula with its good access to the sea and close proximity to Marion/Arsinoe made it an ideal place for *P. brutia* extraction to take place.

Evidence for Hellenistic period farming comes from pottery found associated with stone built terraces. The terrace in Figure 6.3 is typical of those located throughout

the survey zone. This type of dry stone terracing, located and recorded in P029 *Kambos tou Mavroaoratou* and P010 *Kambos tou Mazakiou*, is composed of lines of single stacked small stones with very little sediment accumulation. The highest concentration of this type of small stone terracing is found at P010 *Kambos tou Mazakiou* where terraces are associated with a concentration of pottery and modern intersecting dirt roads.



Figure 6.3: Terrace composed of small stones (two metres of terrace shown).

As excavation was not within the design of this project there is no means of being able to date the terraces on anything other than associated material culture. The sample of pottery collected from morphologically similar terraces dates them from the Hellenistic to Late Roman periods. These dates are very tentative. Terrace deposits by their very nature are disturbed (Treacy and Denevan 1994: 106). Pottery found in association with terraces may originate in manure used for soil improvement dating to a different period than the terrace construction. Likewise the terrace itself may be from a period of remodeling. The Danish Akamas Project proposes that the terracing found throughout the peninsula dates at least partly to the Hellenistic period (Fejfer and Hayes 1995: 66).

Dry field terracing is a technique used in areas without irrigation to improve land by controlling erosion, managing moisture and deepening soil (Treacy and Denevan 1994: 93). The Akamas Peninsula's gently sloping coastal plains did not require terraces for productive farming. Instead terracing was an additional measure used to optimise land fertility and reduce the chances of erosion. These terraces are therefore significant because they show continuity of farming and farming practices through the Hellenistic to Roman periods as well as a long-term commitment to farming the Akamas Peninsula.

6.1.2 Roman period

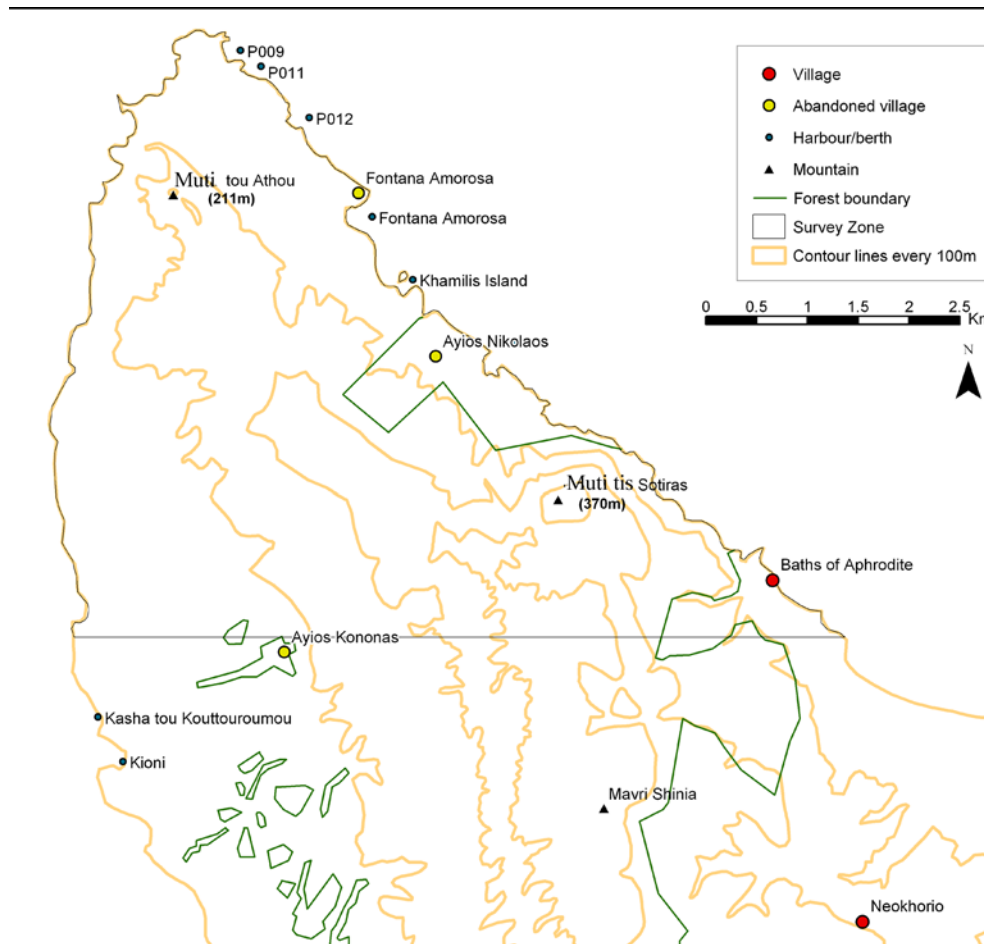


Figure 6.4: Areas of Roman activity relevant to the Roman period with modern villages and forest boundary as points of reference.

Settlement and land use (Figure 6.4) continues from the Hellenistic period through into the Roman period with little change. Farming continues in the Akamas Peninsula and the small stone terraces of the Hellenistic period are joined by a second type of terracing that is concentrated in the northernmost part near Cape Arnauti. The terrace (Figure 6.5), in the locality *Kambos tou Mavroaoratou*, is composed of large boulders. Pottery collected from the series of terraces that make up P029 *Kambos tou Mavroaoratou* date mainly to the Late Roman period.

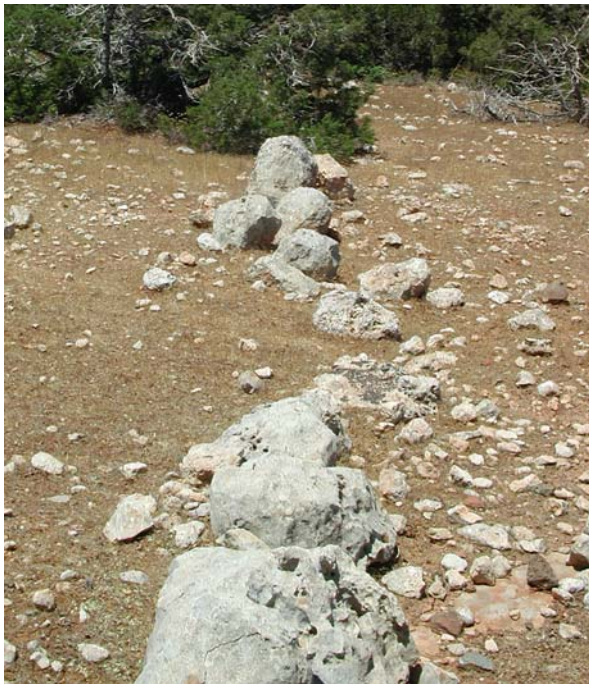


Figure 6.5: Large stone terrace P029 with little sediment accumulation (10 metres of terrace shown)

At Cape Arnauti where the visibility of terraces is most pronounced, large and small stone terraces are interspersed. Morphological differences between these terraces do not reflect different functions. It is not surprising that terraces are most prominent at Cape Arnauti where the soil is thinnest due to calcarenite deposits near the surface and the winds are strongest. Terraces located at the Cape stopped wind from blowing precious soil away while facilitating the accumulation of soil for cultivation. It is feasible that soil from other areas of the survey zone was

brought in for these terraces or that soil gradually built up behind these terraces through backfilling or accretion (Treacy and Denevan 1994: 97-98).

The extensive terracing in the Akamas Peninsula Survey Zone (Figure 6.3 and Figure 6.5), suggests that either the population of the Akamas was large enough to demand and support intensive agricultural production by increasing the productivity of farmland, or produce was exported off the peninsula. Terracing was a technique applied to chosen areas where more intensive farming was desired (Wilkinson 2003: 191). This decision was made initially in the Hellenistic but was reaffirmed throughout the Roman period.

The distribution of pottery from the Hellenistic to Roman period is not consistent across the whole peninsula. I found the northeastern coastal plain scattered with Late Hellenistic to Roman period pottery. Accounts from Hogarth (1889: 14), Quilici (1971: 192) and Wallace (1984: 344) provide evidence of similar concentrations of Roman pottery on the eastern side of the peninsula. Working on the western side of the peninsula, the Danish Akamas project found that pottery lessened in the second and third centuries AD. (Fejfer 1995: 22-23; Fejfer and Hayes 1995: 66).

My survey located Late Roman period pottery throughout the whole survey zone with specific areas of focus around Cape Arnauti, Fontana Amorosa and Ayios Nikolaos. Past archaeologists also noted concentrations of Roman pottery at Fontana Amorosa and Ayios Nikolaos (Captain J.S. Last, in Fejfer and Mathiesen 1995: 59; Quilici 1971: 192). The relationship between the Late Roman pottery and terracing activity on the northeast plains indicates that settlement and land use intensified during this period. This pattern of Late Roman settlement is supported by survey results from the Danish Akamas Project which suggests that the scatter of Late Roman pottery located on the western side of the Akamas Peninsula is indicative of small scale farming settlements (Fejfer and Mathiesen 1991: 222-

223). A similar pattern of Late Roman settlement occurs throughout the whole island during this period (Gregory 2003: 283).

Structural foundations and a pier are visible at Fontana Amorosa (P013 *Muti tis Fountanas*) from aerial photographs. Today Ayios Epiphanius church is the only structure with foundation stone visible from ground level. General Louis Palma di Cesnola (1877: 226) described an ancient town between Fontana Amorosa and Cape Arnauti in the nineteenth century, which may refer to structures visible in the aerial photograph.

Rectangular scars located inland from the harbour at Fontana Amorosa in the locality *Kafkalla tis Fountanas* indicate the presence of a small quarry (P014). The shallow and dispersed nature of these scars indicates that there was little limestone available in the immediate vicinity of the settlement. This small local limestone source provided an expedient supply of local building material for the construction and renovation of structures and the pier at Fontana Amorosa.

A similar small scale quarry was located by the Danish Akamas Project at the settlement of Ayios Kononas on the western side of the peninsula (Fejfer and Mathiesen 1995: 77-80). Here a quarry measuring 35 by 40 metres is located in the center of the inland settlement. Fejfer and Mathiesen (1991: 221) suggest that stone extracted from this small quarry was for the construction of the structures at Ayios Kononas. The Danish team dates the first of these structures to the mid fourth century AD. This structure was associated with a deposit of slag from copper smelting dated to AD 220-390 (Fejfer and Mathiesen 1991: 215-216; 1995: 80). This copper may have originated from the copper ore deposits located along the ridgeline to the southwest of the survey zone (Hayes 1995: 64-66). Additional structures including a basilica were constructed on the site during a later period of expansion in the late sixth century (Fejfer and Hayes 1995: 65-68). Ayios Kononas was occupied until the seventh century.

Outside the Akamas peninsula at the Amathus Gate Cemetery in southwestern Cyprus, building stone was similarly obtained through local quarrying. Although this quarry is larger than either Ayios Kononas or the *Kafkalla tis Fountanas* quarry, it shows that expedient local supplies of building stone were used in settlement construction and/or maintenance when possible, or necessary (Parks *et al.* 1998: 181).

The inland quarries at Ayios Kononas and *Kafkalla tis Fountanas* or Fontana Amorosa, contrast greatly to those located on the southeastern coast of the Akamas peninsula where marine terrace deposits made limestone more readily available (Hayes 1995: 63). Although the quarry of Ayios Nikolaos today is partially submerged beneath the water line, it is 300 metres wide and 100 metres from outer coast to inner harbour (Figure 6.6) (Quilici 1971: 192). Rock was quarried at least 50 metres back from the waters edge, leaving large segments of stone breaking off into the sea. Quarrying with picks, hammers and wedges produced scars that give the harbour its stepped appearance and its local name ‘the theatre’ (Asgari 1978: 474; Maxfield 2001: 155).





Figure 6.6: Photograph of Ayios Nikolaos quarry and harbour.

Located 1.2 km to the northwest of Ayios Nikolaos quarry (P006) is Khamilis Island. Inaccessible by land and only 200 metres across, the quarry on this island was identified from rectangular scars shown on aerial photographs (Figure 6.7). The photographs suggest that at least half of the island was quarried for stone.

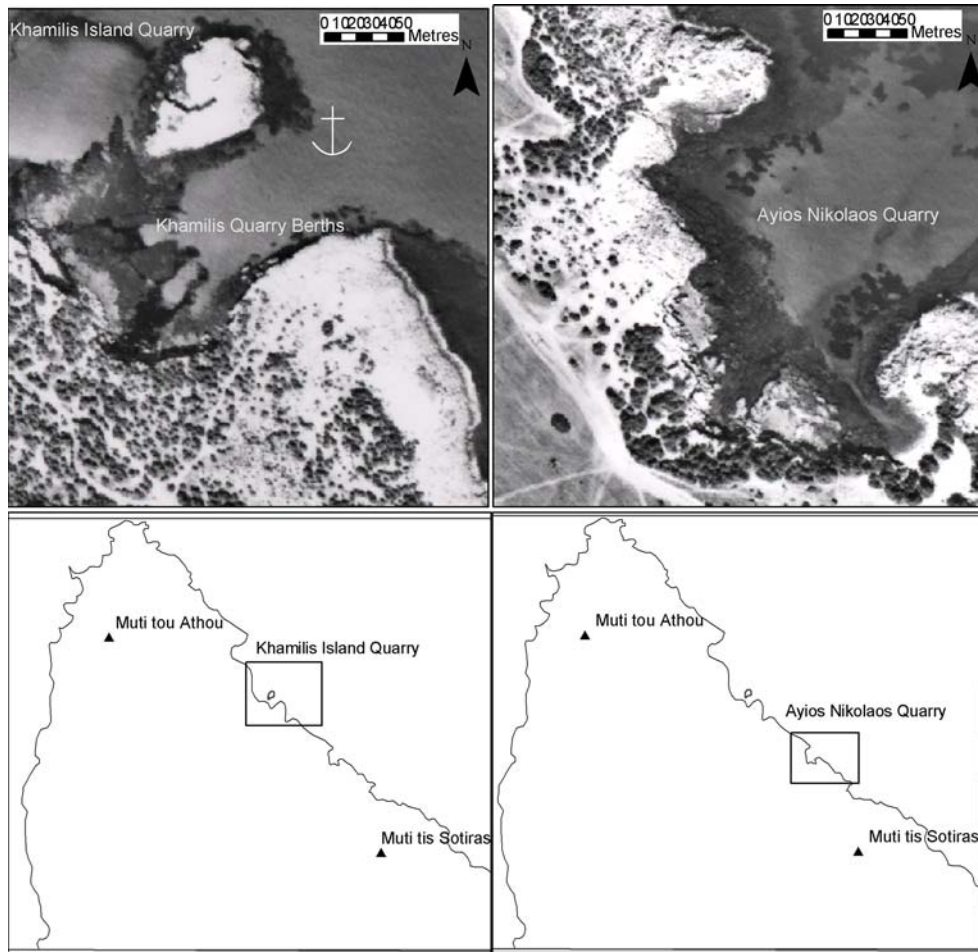


Figure 6.7: Aerial photograph of stepped quarrying scars at Khamilis Island and Ayios Nikolaos.

Small quarries such as that of Ayios Nikolaos and Khamilis Island could produce large amounts of stone. Quarries in the Egypt's Eastern Desert measured no more than 20 metres wide yet still produced large quantities of stone for export to Rome (Maxfield 2001: 144, 155). The location and uniform appearance of quarrying at Ayios Nikolaos and Khamilis Island suggests that the extracted stone was not for local use. Instead these quarries were strategically positioned near the sea to facilitate transportation of stone to external markets by ship (see Section 6.2.1).

Large quarries required complex infrastructure and management. For example, the Egyptian quarry of Mons Claudianus included women, children, soldiers, quarry

workers and supervisors (Maxfield 2001: 155). Here unskilled, skilled and specialized workers were necessary to cut stone and build ramps, rollers and sleds for moving the quarried stone. Likewise, an elaborate infrastructure was developed at the Roman marble quarry at Dokimeion in south central Anatolia to enable quarry managers to determine precisely which workers extracted which marble slabs and where each piece came from in the quarry (Christol and Drew-Bear 1987: 82-137). Even though Ayios Nikolaos and Khamilis Island quarries were not on a scale equivalent to either Roman Dokimeion or Mons Claudianus, these more prestigious quarries offer insight into the potential complexity and administrative apparatus necessary for Roman quarrying in the Akamas Peninsula.

In order to operate effectively, Ayios Nikolaos and Khamilis Island quarries required at least one support village to supply food, shelter and a specialized labour source, as Knapp (2003: 571-572), discusses for mining sites and their support villages. Evidence for such a settlement near Ayios Nikolaos quarry comes mainly from pottery and tombs located through transect and Road Unit survey at Neochorio *Plaki*, while Hogarth (1889: 14) documented structural remains in the Ayios Nikolaos quarry area in the 1880s. The closest known evidence for settlement near to the Khamilis Island quarry is Fontana Amorosa (P013 *Muti tis Fountanas*) located 800 metres to its northwest. Although it is difficult to assess the degree of interaction between the island and the mainland, I suspect that labour and supplies came mainly from the settlement of Ayios Nikolaos where the harbour, quarry, and settlement existed alongside each other.

While stone quarrying continued on the east coast of the Akamas peninsula, timber extraction remained unchanged since the Hellenistic period. The transportation of timber and agricultural produce off the peninsula relied at least partly on land-based communication routes. Minor roads were located and documented by Bekker-Nielsen in the Akamas Peninsula (1995: 119-130; 2004: 138-140). He argues that the roads he located on the Peninsula were *viae vicinales* (village roads)

that, as the Roman surveyor Siculus Flaccus attests, were branching roads that connected public roads to fields and settlements (Bekker Nielsen 2004: 84-86, 104; Flaccus *De condicionibus agrorum* in Bekker-Nielsen 2004: 84-86; Forbes 1964: 157). He suggests that these roads, including those that I include in the ‘Communication by Land’ section of this chapter, were part of a land division scheme where the “areas east and west of the ridge, including the littoral of the west coast, must have formed part of the same *chora*, that of Marion” (Bekker-Nielsen 2004: 138).

Milestones were not found within the Akamas Peninsula. To the southeast of the survey zone near the villages of Terra and Chrysochou, milestones mark the main Roman highway listing their distances from the city of Arsinoe (Mitford 1939-40: 191-192; Nicolaou 1973: 223). Inscribed once in the first or second century AD and then again in AD 333-337, these inscriptions illustrate that the Roman city of Arsinoe was independent and its civic territory, and therefore the area for which it was responsible for road construction and maintenance, included areas up to 10-15 km to its south (Bekker-Nielsen 2004: 238-239; Mitford 1980: 1329). The Roman highway existed in the area in this way for over 200 years before Late Roman intensification of agricultural production and resource extraction.

Scholars believe that soon following the collapse of Justinian administration in the sixth century AD, Cyprus’ farmers turned away from producing excess goods for regional and extra regional markets and instead turned to subsistence living (Fejfer and Hayes 1995: 69; McClellan and Rautman 1995: 86). The abrupt end to settlement evidence on the Akamas Peninsula following the Late Roman period is supported by the fact that the Late Roman prosperity on the peninsula was likely export driven through the extraction of stone, timber and agricultural produce.

6.1.3 Medieval period

The Akamas peninsula is not dissimilar to other areas in western Cyprus where little material evidence for occupation exists between the seventh and twelfth centuries. The contrast between the pottery rich Late Roman period and the complete absence of Byzantine period pottery in the survey zone must be carefully interpreted. As Gregory (2003: 283-284; 1987: 200) suggests, the invisibility of the Byzantine period may in fact be due to a classification problem in which Byzantine pottery is mistaken for material from the Late Roman period.

The Medieval period in the Akamas Peninsula Survey Zone (Figure 6.8) is characterised by the movement of settlement southeast away from the coast to the estates, and estate land, of Neochorio, Potamos/Potami, Idrami/Ydrami, Vosilachi/Vorolachi and Pyrgos tis Reginas. This inland movement of settlement is commonly associated with invasion and piracy (Christodoulou 1959: 62-63; Drury 1972: 166-167; Given 2000: 221; Gregory 1987: 200). In many instances however, this movement was just as much associated with settling in areas with perennial sources of water and fertile alluvial terraces (Hayes 1995: 175).

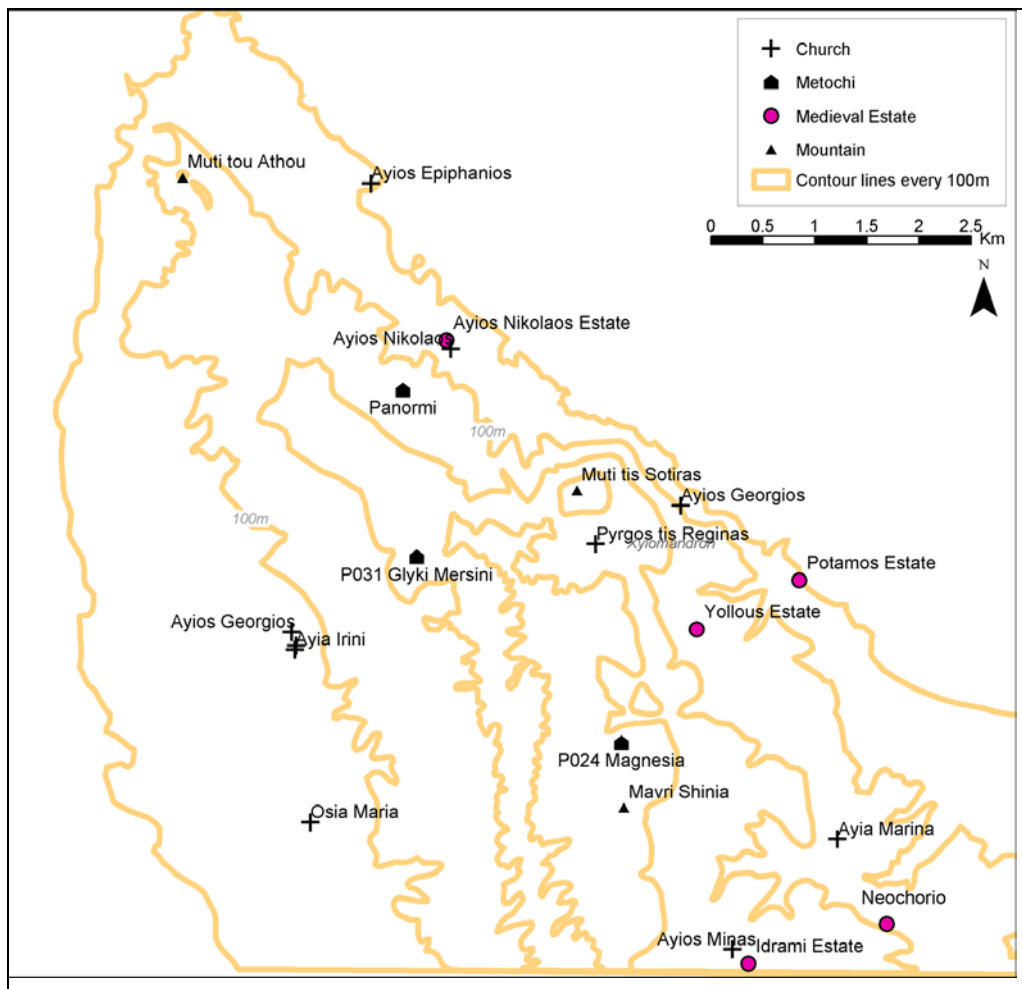


Figure 6.8: Medieval period Akamas

Settlement evidence from medieval pottery is scarce in the survey zone. Two fragments of pottery dated to Medieval-Modern and Medieval-Ottoman periods were located through transect and Road Unit survey on the plateau above the abandoned church of Ayios Nikolaos on the eastern side of the peninsula. A similar distribution of pottery was found by the survey of the western peninsula by the Danish Akamas Project (Hayes 1995: 175).

Medieval period settlement evidence comes primarily from structural remains located through transect and Road Unit survey. These structures include the churches of Ayios Epiphanius, Ayios Nikolaos and Ayios Georgios, the monastery

of Pyrgos tis Reginas, and three large isolated structures. My investigation of the relationships between churches and the presence of medieval estates in the Akamas Peninsula Survey Zone supports Jeffrey's (1918: 411) claim that the 'rustic' churches in the Akamas are the remains of chapels from estates or *chiftliks*. Evidence for an association comes from Ayios Nicholas and Ayios Georgios Church while Ayios Epiphanius more closely parallels churches studied by the Danish Akamas Project on the west coast of the peninsula.

The church of Ayios Epiphanius was investigated as part of the settlement of P013 Fontana Amorosa, in the locality of *Muti tis Fountanas*. Its two course ashlar stone foundations are located on the northern shore of the harbour. It is the most poorly preserved of those churches found in the survey zone and appears to be the only evidence of post-Roman occupation in the immediate area. Travellers who visited Fontana Amorosa between the sixteenth and eighteenth centuries only sporadically mentioned structures. They commonly confused the location and therefore descriptions of Fontana Amorosa with the Baths of Aphrodite located 8 km to the east, and therefore these accounts or their absence are unreliable (Cobham 1908: 165, 244, 251, 332).

It is unlikely that a medieval period estate existed alongside the church of Ayios Epiphanius. The church foundations are located on the northern edge of the harbour. The church's proximity to the coast is anomalous in the survey zone. If invasion and piracy were acute threats during the Medieval period then the church and its estate buildings were in located in a dangerous position (Christodoulou 1959: 62-63; Given 2000: 221; Gregory 1987: 200). It is unlikely that an estate owner would locate their manorial buildings and storage facilities in such a risky location on the coast near an accessible harbour with ancient pier.

The presence of Ayios Epiphanius in an area without any other post-Roman evidence for occupation can be explained if the church dates to the early Christian

period, like the sixth to eighth century basilica at Ayios Kononas. Unfortunately lack of clear evidence for the church, such as an apse, made drawing parallels between these two churches difficult.

It is also possible that churches were not always the focus of settlement. The medieval structural remains at Fontana Amorosa parallel those found by the Danish Akamas Project on the western side of the peninsula around Ayios Kononas. Even though the project located one early Christian basilica dated to between the sixth and eighth centuries and the shrine of Ayia Irini and Ayios Georgios church dated to the fourteenth century, they have little evidence for people living in the area during the Medieval period (Fejfer and Mathiesen 1992: 70-71; 1995: 73-83). They did not locate structures associated with the churches nor significant quantities of pottery. The Danish Akamas Project suggests that people did not live near the churches during the Medieval period but instead came for short periods to maintain the buildings (Fejfer and Mathiesen 1995: 85).

Unlike Ayios Epiphanius, the churches of Ayios Nikolaos' and Ayios Georgios' preservation, location and associated settlement evidence suggests that they were constructed around the fourteenth century – probably during the same period as Ayios Georgios and Ayia Irini on the western side of the peninsula (Fejfer and Mathiesen 1992: 70-71).

Ayios Georgios church (P002) clings precariously to Muti tis Sotiras in the locality of *Mastikhia*, just above a spring (Figure 6.9). The apse of the church faces east to view Chrysochou Bay and is visible, and was identified, from a modern road that runs further down the slope below the church. Limestone ashlar blocks make up the narthex and the surviving courses of its north and south walls while there are no remains of the back wall of the church that was once built into the side hill.



Figure 6.9: View of the sanctuary of Ayios Georgios Church P002 on mountainside facing east toward the Baths of Aphroditie.

The church is small with inner wall dimensions of 2 x 8 metres. There are few historical references or archaeological investigations of the church. The only historical description comes from Goodwin (1978: 206) who upon his visit believed it had been in ruins for at least a century.

The steep topography of the mountain makes it impossible to have estate buildings directly associated with this church. Much fertile land to the south of Ayios Georgios includes the locality name '*Xylomandron*' or wooden *mandres*. Although no structural remains are located in this area, the monastery Pyrgos tis Reginas is located less than 1 km to the southwest. The close proximity and a path (see Section 6.2.2 'Eastern Peninsula Communication') connecting the two suggests

that the church of Ayios Georgios and the fertile land to its south belonged to, and was run by, the monastery.

Pyrgos tis Reginas is located in a lush valley near the river Argaki tou Pyrgou. The 1999-2000 excavations by Trinity College, Carmarthen uncovered structural remains that include a church, ovens and a kitchen, while two bodies were excavated from the church annex (Watson n.d.). When Hogarth (1889: 15-16) visited in 1889 he noted the northern side of the church cloister with standing walls showing the remains of frescos. Frankish coins and pottery date the monastery to the fourteenth century. Although no evidence from the 2000 season has yet been published that dates the monastery earlier, the late Byzantine period “was in fact an age of church-building and monastery founding” when monasteries including Kykko, Makhairas, Chrysorhoyiatissa and Ayios Neophytos were constructed (Karouzis 1977: 24).

In monastic estates such as the monastery of Makhairas the abbot managed the estate and led the monastery while the income came from estate lands (Coureas 2003: 65-128). A similar situation likely took place in the Akamas Peninsula where Pyrgos tis Reginas held estate land. Three structures (P024 *Magnesia*, P031 *Glyki Mersini* and *Panormi*) located through transect and Road Unit survey are interpreted as the remains of medieval and then Ottoman period *metochia*. *Metochia* are defined as a “seasonal or subsidiary settlement” or a “monastic dependency” (Davies 2004: 112). Both definitions are relevant to the Medieval period. These three structures (Figure 6.10) have tall roofs and two to three large rooms with lengths up to 15 metres long.



Figure 6.10: P024 Neochorio Magnesia structure showing substantial use of ashlar masonry especially around lintels and doorways.

Interestingly, it appears that these structures were at least partially composed of quarried ashlar masonry, possibly reused from a previous Roman period occupation. I suggest that P024 and P031 were *metochia* that served Pyrgos tis Reginas estate during the fourteenth century when churches and their estates on both the east and western sides of the Akamas Peninsula were constructed (Fejfer and Mathiesen 1995: 73). The third structure (Neochorio *Potami*) is located on a fertile plateau directly to the south of Ayios Nikolaos church and ruined settlement. Its close proximity to Ayios Nikolaos church, a water source and agricultural fields provide evidence for functioning as a seasonal or secondary structure belonging to Ayios Nikolaos estate.

Ayios Nikolaos church is located in an agricultural area on a fertile plateau near a spring and .5 km northwest of the Roman period quarry and harbour of *Plaki*. Today the church is the southwesternmost structure belonging to an abandoned settlement (P001), most recently used in the Ottoman period. Limestone ashlar

masonry makes up the foundations of the church and its surrounding structures. Much of the stone is reused from the nearby Roman quarry and its support settlement. The eastern sanctuary and western walls are best preserved with the fading remains of frescos on the northeast and southwest walls.

Although the Venetian census of 1550 does not list Ayios Nikolaos settlement existing prior to the late Ottoman period, the relationship between the surrounding fertile agricultural land, structural remains and pottery at Ayios Nikolaos settlement strongly implies that Ayios Nikolaos church was a chapel belonging to a medieval estate (Grivaud 1998: 251). Material remains of the estate are likely obscured by the later Ottoman period reuse and expansion of structures at this settlement. The correlation between the name of the venerated saint and the settlement's locality name *Ayios Nikolaos* tentatively suggests that the church and the pre-Ottoman settlement were built contemporaneously. When the church was constructed it was integral to the settlement – defining and naming it.

The church of Ayios Nikolaos may have belonged to the larger secular estate of Neochorio, the co-registered estates Potami/Potamos, Vosilachi/Vorolachi and Idrami/Ydrami that were run as one estate by the mid sixteenth century, or the monastic estate Pyrgos tis Reginas (Grivaud 1998: 251). The medieval *casal* (or estate) of Neochorio is located on a fertile plateau to the southeast of the Akamas Peninsula Survey Zone (Grivaud 1998: 472). During the Medieval and later Ottoman period the region surrounding Neochorio was used extensively for farming. Of those estates listed, Neochorio is the only village that did not disappear by the nineteenth century (1998: 249). The continual occupation of Neochorio village and the proposed Medieval to Modern period occupation of Ayios Nikolaos settlement, suggests an association that had its roots in the Medieval period.

6.1.4 Ottoman period

During the Ottoman period settlement in the Akamas Peninsula constricted even further to the southeast focussing around *chiftliks*, or privately owned estates (Davies 2004: 98,111). Like medieval estates, *chiftliks* were large farms with communal facilities that formed at the end of the Medieval period when the population had declined and people could no longer afford their taxes (Davies 2004: 94-104). In some cases land was donated to the church that was better equipped to pay taxes, while in other cases landless peasants worked for the State on land ultimately owned by the Sultan but run privately (Sant Cassia 1986: 11). *Reaya chiftliks* were farms where peasants or sharecroppers leased a unit of land or 'cift' to farm. The *chiftliks* in and around the survey zone were likely this type (Davies 2004: 98-104, 111; Gazioglu 1990: 122).

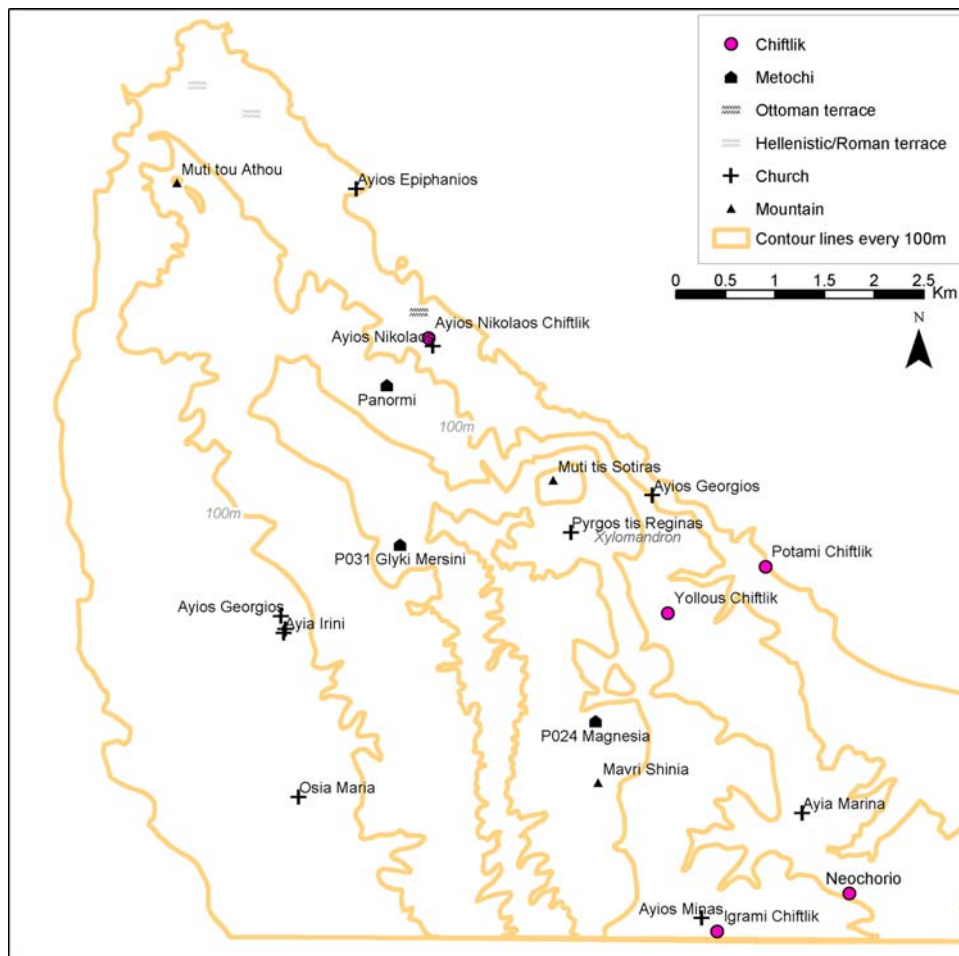


Figure 6.11: Ottoman period Akamas Peninsula

The main body of pottery and structural evidence for Ottoman period settlement in the survey zone comes from eastern side of the peninsula at Ayios Nikolaos *chiftlik* (P001). The Ottoman period was not intensively investigated by the Danish Akamas Project. Although earlier Medieval and Late Byzantine churches on both the east and western sides of the peninsula were visited and looked after throughout the Ottoman period, Ayios Nikolaos is the only church in the survey zone found associated with Ottoman period settlement remains.

During the Ottoman period there were four *chiftliks* (Igrami, Potami, Yollous and Ayios Nikolaos) located in the Akamas Peninsula (Figure 6.11). Medieval to

Ottoman period settlement continuity at sites like Ayios Nikolaos is at least in part related to the fact that *chiftliks* were founded on the best land where there was a perennial source of water (Christodoulou 1959: 76). In some cases estates already held this land in the Medieval period. These estates had a well-established manorial infrastructure and population base. For example, in 1565 Venetian records register Idrami/Ydrami, Potamos/Potami and Vosilachi/Vorolachi *casals* together. By the nineteenth century, villagers from these estates were dispersed throughout the Akamas, their villages abandoned and *chiftliks* established in their stead. Idrami/Ydrami estate changed its name to Igrami *chiftlik*, Potamos/Potami estate became Potami *chiftlik* and the inhabitants of Vosilachi/Vorolachi were likely incorporated into either of these two other *chiftliks* (Grivaud 1998: 248, 251). If these settlements were located within the Akamas Peninsula Survey Zone one can only conclude that they would be similar to that of Ayios Nikolaos with both Medieval and later Ottoman period pottery and structural remains.

As a result of poor visibility, little pottery from the Ottoman period was located at Ayios Nikolaos settlement. Instead pottery dating to the Medieval-Modern period was located on the fields below and above the settlement. The settlement itself consists of at least six structures including the church of Ayios Nikolaos located in the southeasternmost part of the settlement, while domestic facilities include an oven and one cistern with attached fountain. A palm tree with a rock wall marks the entrance to the village.

When the Ottoman Government took over the administration of Cyprus they maintained preexisting power structures (Sant Cassia 1986: 3-4). Ayios Nikolaos is a good example of how Ottoman period *chiftliks* used and expanded on previous medieval estate structures and infrastructure. Structures from this *chiftlik* both incorporate stone from previous structures while expanding upon those that were there before. The presence of a marble column and ashlar blocks in wall rubble suggests that material from the Roman period onwards was present and reused at

the site, while more modern components of buildings such as wooden lintels and white plaster provide structural evidence that the *chiftlik* was used into the nineteenth century. The presence of an accessible water supply even in the hottest months and fertile agricultural land above and below the settlement make it no surprise that the area surrounding Ayios Nikolaos was used throughout antiquity.

The presence of terracing, an olive press and cistern in the fields above and below the *chiftlik* demonstrates that intensive farming took place on the land surrounding the settlement. Terracing made of stacked fist-sized stones shown in Figure 6.12 below is located in the fields directly associated with the abandoned structures at Ayios Nikolaos (P001). Unlike terraces discussed earlier in the Pre-Roman and Roman periods, these terraces are composed of more than one course of stone with sediment build up behind the terrace riser indicating that they were formed by digging and infilling (Treacy and Denevan 1994: 98). Three cisterns in the vicinity of the village provided both drinking water and water for irrigation. Although pottery is not found in association with this terracing, the presence of a concrete olive pressing stone just to the north, and the closely associated *chiftlik* manorial buildings, demonstrates that the agricultural terracing and *chiftlik* are contemporaneous.



Figure 6.12: Terrace at Ayios Nikolaos with two courses of stone and sediment accumulation (visible section is two metres long).

Olive and carob trees are scattered around the edges of fields at Ayios Nikolaos today. The cultivation of carobs started in the sixteenth century and was an important part of Ottoman period agriculture in lowland areas (Christodoulou 1959: 168-169). The association between terraces, cisterns, pressing stones, ovens

and structural remains at the *chiftlik* not only indicate that farming was the overall focus of the settlement, but that those communal manorial facilities at Ayios Nikolaos – housing, storage, water supply, milling etc. – made the settlement a focal point in the Ottoman landscape.

Ottoman farming was not confined to the land immediately surrounding the *chiftlik* of Ayios Nikolaos. The *metochia* P024 *Magnesia*, P031 *Glyki Mersini* and *Panormi* near Ayios Nikolaos, discussed previously in Section 6.1.3, were reused during the Ottoman period when their doors were blocked and plasterwork applied. Extensive modification at P024 *Magnesia* included plastering and re-using ashlar blocks for lintels and doorways.

These large structures could both store resources such as timber, carobs and olives while housing workers. Goats and sheep were economically important during the Ottoman period (Given and Gregory 2003: 292). The Akamas Peninsula offers both good lowland areas for sheep while maquis provides grazing land for goats (Christodoulou 1959: 189-190). These *metochia* could be used for housing livestock as well as milking and cheese making.

In the late Ottoman period the *chiftlik* of Ayios Nikolaos and Yollous *chiftlik*, located three kilometres to the southeast, are listed as one piece of property, “2 enregistrés en une seule unité de peuplement (Ayios Nikolaos et Yollous)” (Grivaud 1998: 478). It is likely that these two previously independent *chiftliks* were purchased together by a wealthy landowner and subsequently administered as one estate. In 1881, this estate had 21 structures and a cumulative population of 56 men and 36 women. Road Unit data discussed in Section 6.3 provides evidence for interaction between these two geographically distant *chiftliks*.

6.1.5 British Colonial period

There is no evidence in the survey zone to suggest that there was a distinct end to the Ottoman period settlement pattern and the start of a new British Colonial one until the area was opened as a British firing range in the late 1930s (Red 1 SA1/1402/1939). Settlement continued to focus around *chiftliks* (Figure 6.13). Historical accounts of the peninsula written during the British Colonial period saw it “devoid of all human habitation other than isolated *chiftliks* or huts inhabited only in summer” (Hogarth 1889: 10).

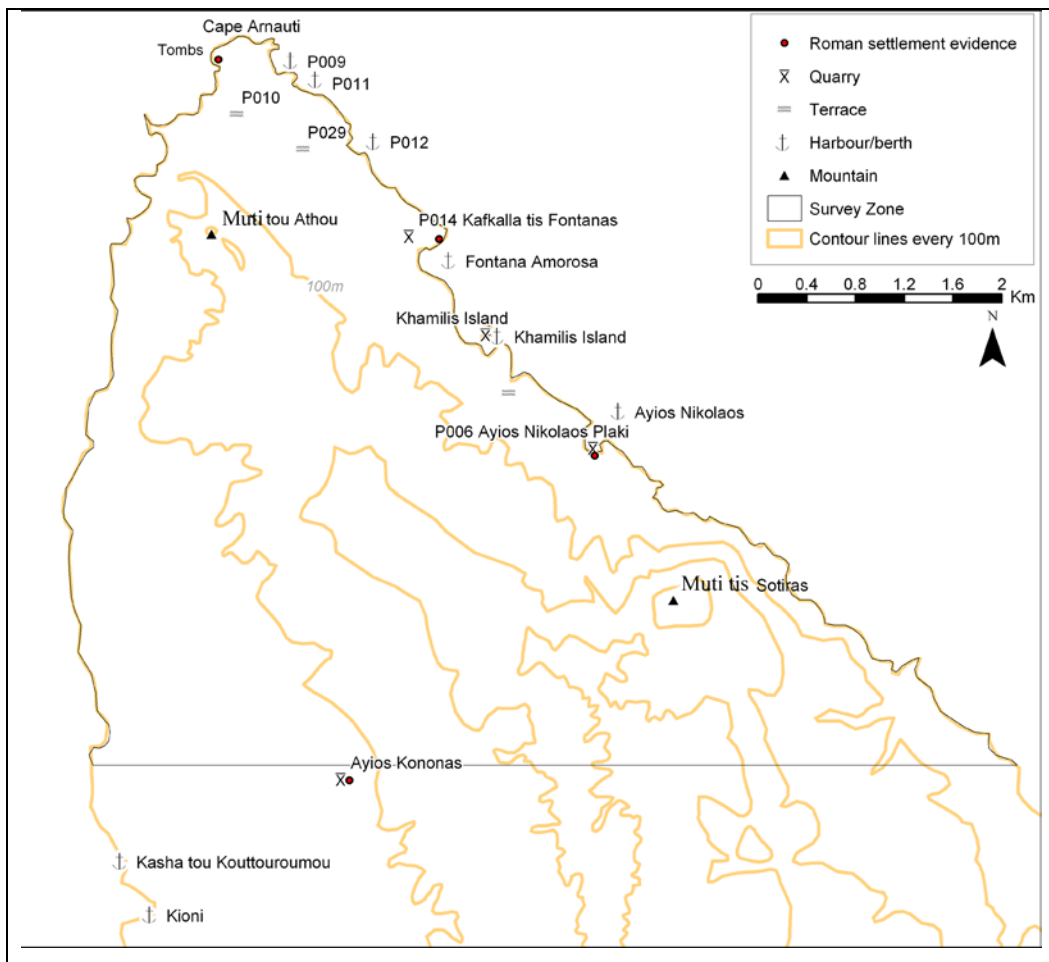


Figure 6.13: Areas of settlement and/or seasonal activity during the British Colonial period

Ayios Nikolaos appears to change little during this period, with settlement evidence incorporating structural materials like plaster, cement and wooden beams.

Worn green glass and shotgun cartridges at the site may date from the late British Colonial periods onwards into the modern day. The main change in settlement occurred on the western side of the peninsula where the Danish Akamas Project found evidence for nineteenth century occupation at Ayios Kononas where structures incorporated stone from the ancient site for house corners, ashlar and cut stones around doors (Fejfer and Mathiesen 1995: 76-77).

Animal husbandry and the cultivation of crops like cereals, carobs and olives continued through this period at Ayios Nikolaos *chiflik*, *Glyki Mersini* (P031) and *Panormi metochia*. Resource extraction in the southeast included magnesite mining that was neither intensive nor long-term. Pits measuring from one to six metres in diameter were located in the locality of *Magnesia* (P003, P004, P005). The third *metochi*, P024 *Magnesia*, is located in close proximity to the structural remains of a kiln (P004) for roasting limestone for the extraction of magnesite. It is logical to assume from the location and locality name that this *metochi* played a role in the mining operation. This large structure could serve many functions from housing labourers to storing magnesite, mining equipment and fodder to feed the mules and camels that transported the magnesite to the ports at Latchi and the Baths of Aphrodite (Savas Theodorou interviewed by Alphas 2004; Wallace 1983: 239). Villagers living in Neochorio today had grandparents that worked mining magnesite at *Smiyes*.

During the British Colonial period a watchtower or salt guardhouse was located on the northernmost part of the peninsula on the cliffs of Muti tou Athou. The structure functioned as an outpost where British officials watched over the coast to make sure that villagers did not illegally collect the salt that naturally accumulates in small hollows in the limestone. A similar watchtower to enforce the salt tax was located along Cyprus' coastline to the south at Lara Peninsula (Fortin 1978: 62).

In many instances *chiftliks* like Ayios Nikolaos and Potami operated into the early twentieth century (Wallace 1983: 239-240). Evidence that *chiftliks* still existed in the Akamas in 1938 was found in Cyprus' archives. When the modern road connecting Latchi to the Baths of Aphrodite was constructed the "owners of the Akamas chiftliks" contributed 40 pounds to their construction (SA1/632/1927).

6.2 Communication routes

Communication in the Akamas Peninsula took place by sea and land. Interaction in the survey zone is linked to how the landscape, and peoples' perceptions of the landscape, changed through time. The preceding chronological framework for landscape development (Section 6.1) provides a foundation for the interpretation of communication route data. Discussion of these data is divided into two main themes: communication by sea and communication by land. Evidence for sea-based communication routes includes harbours, berths, their associated settlements and quarries. Communication by land involves the analyses of Road Unit data. Like sea-based routes, Road Unit morphology and structural features are tightly entwined with their associated land use and settlement data. Two examples of land-based routes are chosen for illustrative purposes: the 'North-South inland communication route' and the 'East peninsula communication route'.

6.2.1 Communication by sea

The deep gullies and winding coastline made travel by land along the Akamas Peninsula coastline time consuming and tedious. General Louis Palma di Cesnola (1877: 226), who visited the Peninsula in the late nineteenth century, travelled from the Baths of Aphrodite northwest: "following the tortuous windings of the sea-shore, we journeyed west-ward until we reached a secluded thickly wooded spot rendered famous by Aristo, and called Fontana Amorosa". Movement between the sheltered eastern side Akamas peninsula to Chrysochou Bay was more easily done by sea than by land. Travel between the eastern and western sides of the peninsula

was complicated both by land and sea. The steep North-South communication route (Section 6.2.2) was not conducive to all types of vehicle while small watercraft likely avoided the rugged northern tip of Cape Arnauti.

The Akamas Peninsula was a landmark used by sailors circumnavigating the island. Strabo discusses the Cape of Akamas as he sailed around the island, “Then, after Paphus, one comes to the Acamas. Then after the Acamas towards the east, one sails to a city of Arsinoe” (14.6.2). Pliny similarly discusses the cape of Akamas when determining distance from the Cilician and Syrian mainland to Cyprus (Natural History 127.35.129).

During the Roman period many large, medium and small harbours and anchorages scattered the coastline of Cyprus (Leonard 1995b: 229). Those sailors needing shelter to anchor on the west coast of the peninsula had to travel to the harbour at Lara, Kasha tou Kouttouroumou or the adjacent anchorage at Kioni. Alternatively they could travel around Cape Arnauti to the more sheltered eastern coast of the peninsula (Leonard 1995a: 145, 133-170). The eastern (leeward) side of Cape Arnauti is punctuated with many small berths and harbours such as Fontana Amorosa, Ayios Nikolaos and further east along the coast of Chrysochou Bay to the ancient mole at Latchi. Some of these berths, harbours and their associated structural remains were located through transect survey and form archaeological evidence for sea-based communication in the Akamas Peninsula Survey Zone. The general position of berths and harbours is shown in Figure 6.13.

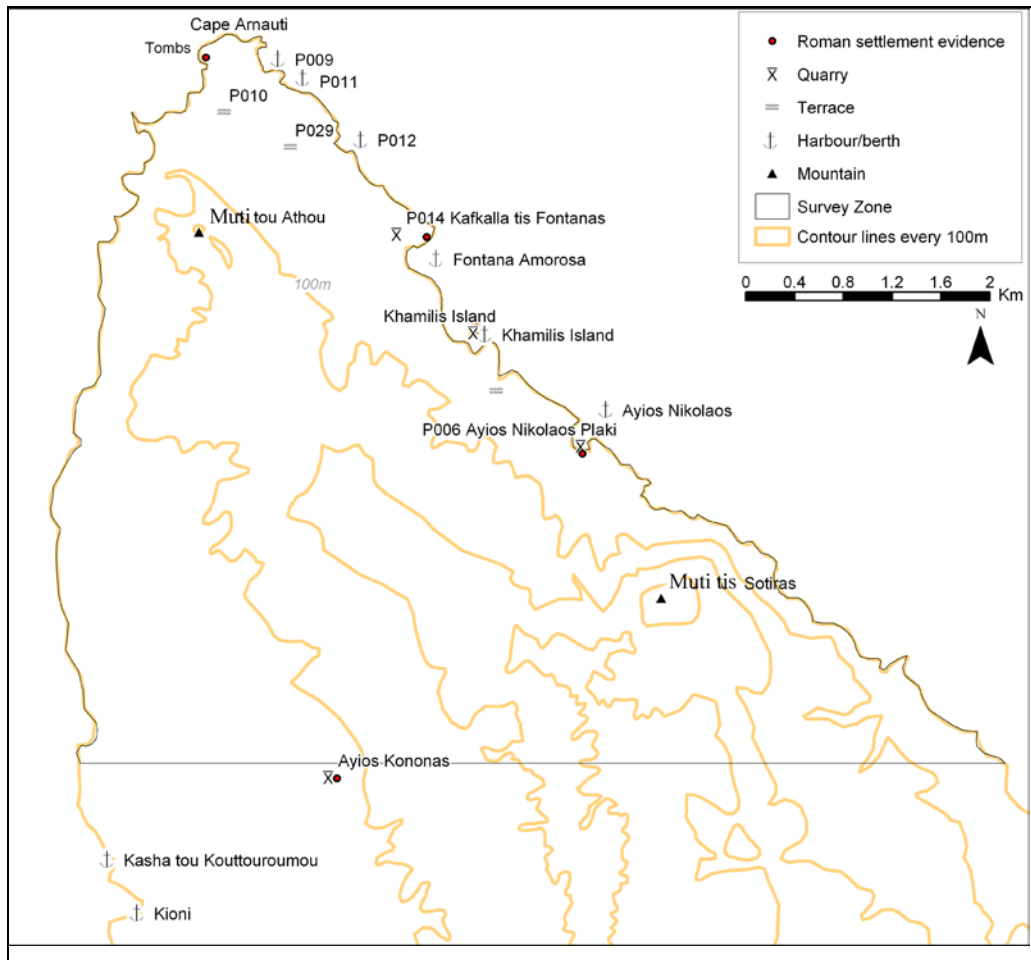


Figure 6.14: View of harbours and berths in the vicinity of the Akamas Peninsula Survey Zone.

Small berths with associated bedrock cut loading ramps or cargo holding areas are located on the leeward side of Cape Arnauti in the northernmost portion of the survey zone, as well as at Khamilis Island to the southeast of Fontana Amorosa. They have bedrock cut openings large enough to enable boats to tie up within or alongside them and could accommodate boats with a beam between 3.5 and 6 metres. The smallest berths (P009 *Papadhoes*) are located just to the south of the very tip of Cape Arnauti (Figure 6.14 and Figure 6.15). These two berths are between 3 and 3.5 metres wide and able to accommodate a boat with a length of up to 12 metres. Interestingly, these two berths are associated with flattened bedrock areas, which may be the remains of loading areas or dry docks. Boats using these

northernmost harbours were potentially involved in fishing and subsistence based movement of agricultural produce.

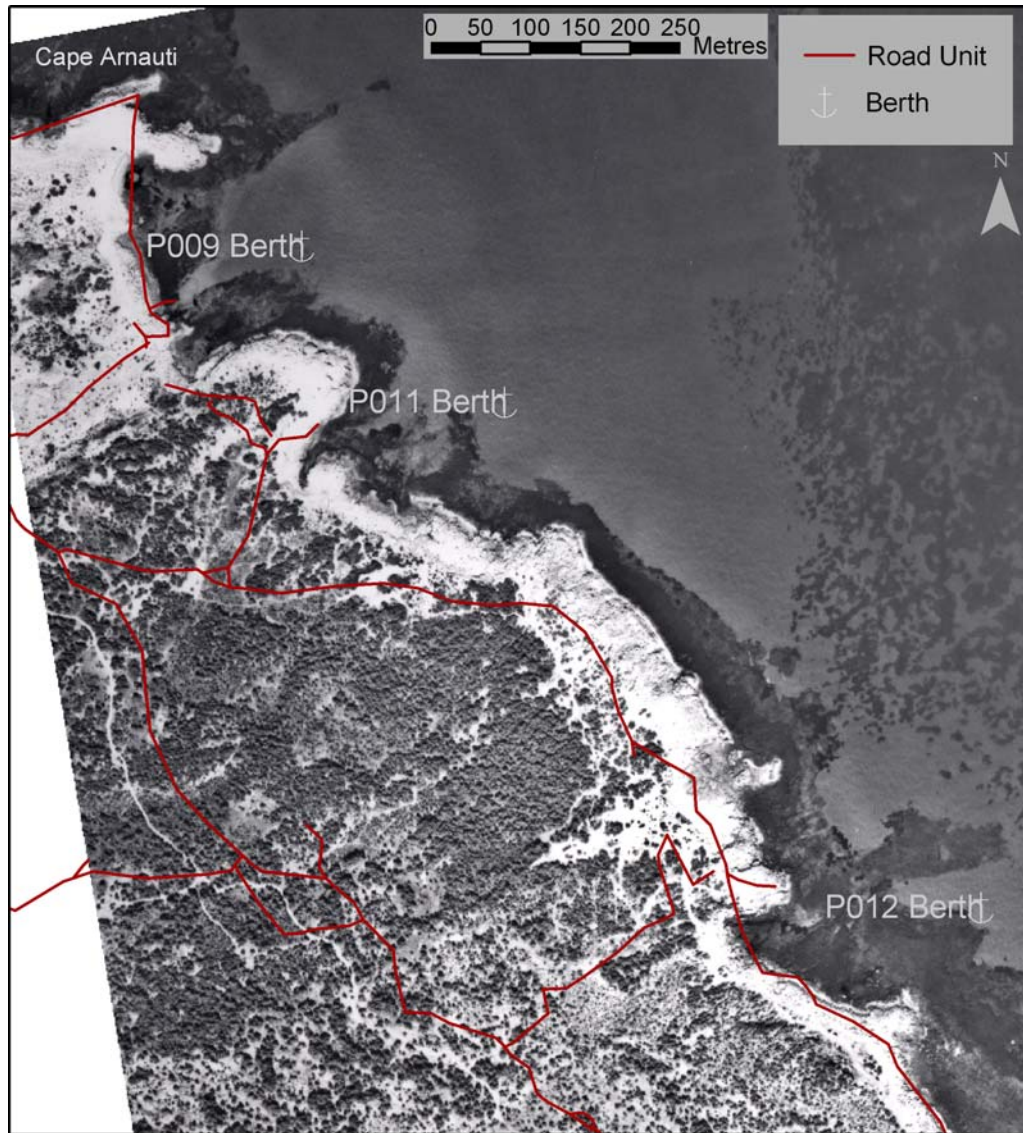


Figure 6.15: Aerial photograph of Cape Arnauti with small berths including P009.

Larger bedrock cut berths in the *Papadhoes* (P006, P011) and *Kokkinospiliadhon* (P012) localities to the south of P009, could accommodate vessels between 6 and 8 metres wide. Vessels using these berths were large enough to transport medium-sized cargos including stone and amphorae as well as larger shipments of agricultural produce (Parker 1992: 26). Ramps with one bedrock platform 10

metres long by 8 metres wide are found associated with P012 *Kokkinospiliadhon*. The association between the ramps, bedrock cut platform and a bedrock cut road (RU0146; see Figure 6.16) to the south of the berth suggests that produce was loaded and unloaded at this berth. The association between the road and berth is significant as it provides evidence for a link between sea and land communication.

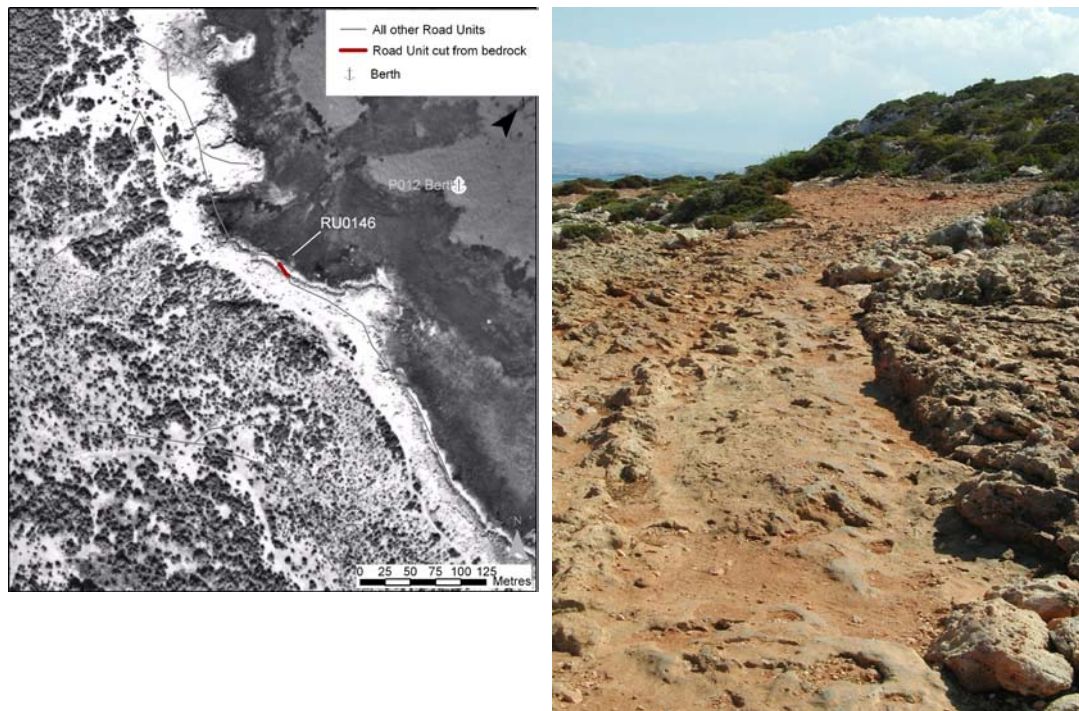


Figure 6.16: Bedrock cut Road Unit RU0146 in association with berth and loading area of P012

The two berths at Khamilis Island are similar in form to P011 *Papadhoes* and P012 *Kokkinospiliadhon* discussed above. These bedrock cut berths, located on the mainland to the east of Khamilis Island, were identified from the aerial photograph shown below (Figure 6.17).

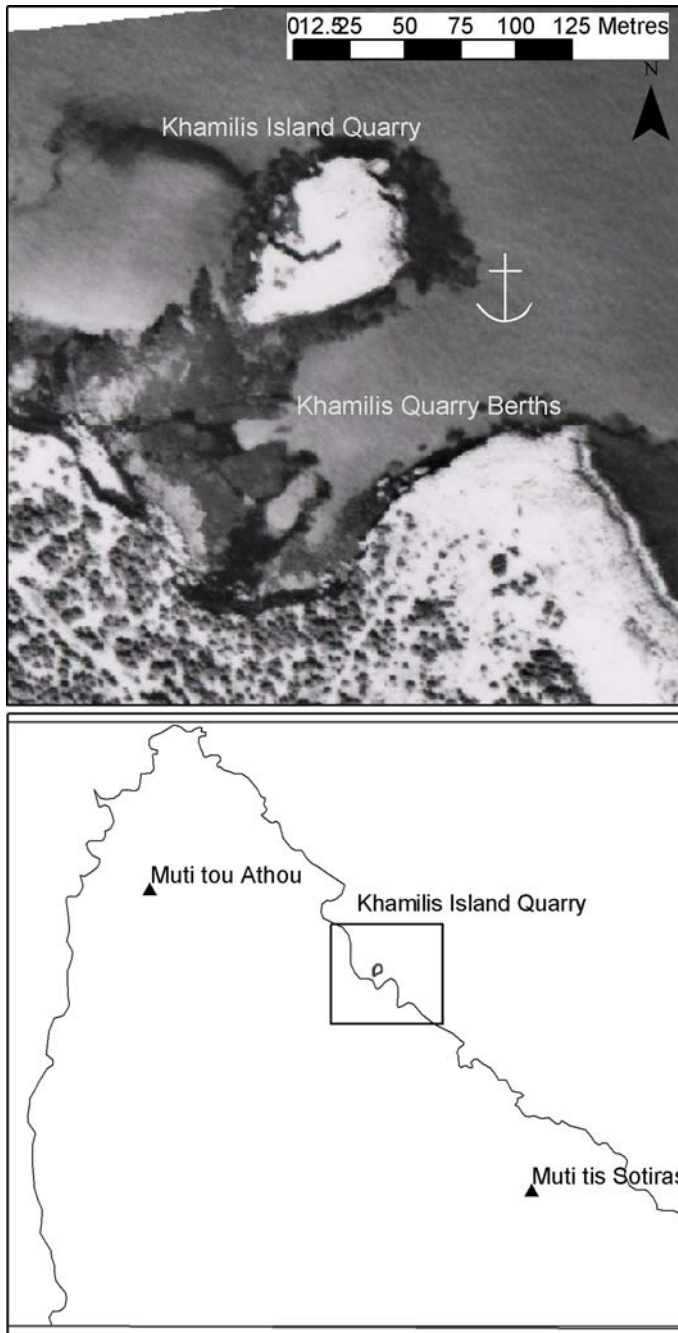


Figure 6.17: Aerial photograph of Khamilis Island and berths

These berths are inaccessible from the mainland because of the jagged nature of the coast. Ships using these berths to transport quarry stone from Khamilis Island could have dimensions between 5-6 metres wide by 17 metres long (Parker 1992:

190). The berths and their associated quarry represent an industrial interest in the peninsula.

Ships seeking greater shelter from the strong winds of the western Peninsula or the trade and transportation of larger quantities of produce avoided the small northern berths in favour of the larger and more protected harbours such as Fontana Amorosa and Ayios Nikolaos on the eastern coast, and Kioni on the western side of the peninsula. All three harbours are made in naturally circular basins and therefore fall into Leonard's (1995b: 232; 1997: 192) second type of port classification termed 'ὄρμος' – "a natural or artificial harbor of relative medium or small size and/or importance, with a generally circular or ring-like shape".

Berths and harbours are areas of interaction where communication by sea meets communication by land. Knapp (1994: 154) suggests that such areas are transit points where "farmers and merchants meet mariners and sea traders, and where economic and cultural traditions may mingle or clash". In some instances interaction in the Akamas Peninsula cumulated in the development of settlement while in others this interaction only prompted the construction of harbour facilities like pier, bedrock cut docking areas and storage buildings. The analyses of settlement evidence and architectural remains located at harbours therefore provides a starting point for understanding the degree of interaction that occurred between land and sea-based communication routes in the survey zone.

A long-term commitment to communication is represented in harbour architecture and settlement at Fontana Amorosa. The harbour of Fontana Amorosa has a series of four loading areas or dry docks located on its northern bank (P013 *Muti tis Fountanas*). These bedrock cut features range in size from 8 to 10 metres wide. The submerged remains of a pier are located in the northwestern part of the harbour. This previously unrecorded architectural feature is visible from an aerial photograph (Figure 6.18). Commonly used as loading and unloading areas in

antiquity, piers of this style were common in western Cyprus during the Roman period (Angus Graham personal communication 2004). There is a clear relationship between the harbour, settlement at Fontana Amorosa and the heavily terraced Cape Arnauti landscape. The harbour played an important role in the expansion of Late Roman period agricultural production and the export of surplus agricultural produce to regional markets such as Arsinoe.

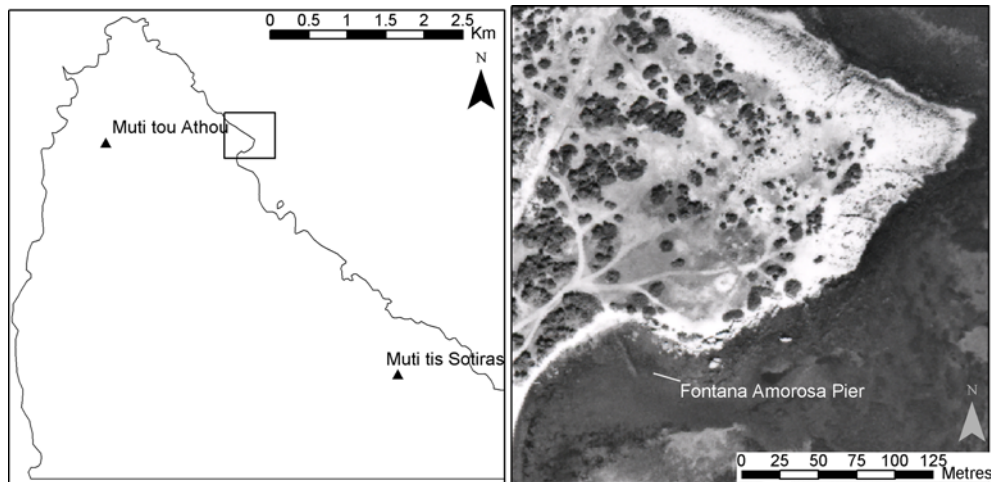


Figure 6.18: Aerial photograph of pier at Fontana Amorosa

Quarrying activity at *Plaki* likely destroyed architectural evidence for the pre-existing harbour. The sea level changed between two and three metres since the quarry's abandonment, thus partially submerging the quarry and those structural remains related to the harbour and its later quarrying activity (Pirazzoli 1988: 162; Quilici 1971: 192). Survey located a potential docking area on the western side of the harbour where the water today is deeper.

The fact that stone quarrying took place at this harbour suggests that not only was interaction between the mainland and the sea intended, but interaction between the land and sea was already taking place at Ayios Nikolaos before stone extraction started. The proposed support village that provided labour and supplies to the Roman quarry (Section 6.1) was an outcome of this interaction. Those berths located on the mainland but associated with the quarry at Khamilis Island starkly

contrast with those at *Plaki*, in that they were constructed without the intent to communicate with the mainland – they were constructed for the sole purpose of extracting quarry stone.

Repeated interaction does not always represent itself in the form of a settlement. The natural harbour at Kioni is located on the west coast of the Akamas Peninsula to the south of the survey zone. John Leonard (1995a; 1995b) surveyed the harbour in association with the Danish Akamas Project. A wide range of broken pottery from the Cypro-Archaic period through to the Medieval period was located on the sea floor. Some of this pottery, such as Gallic amphorae, represents truly long distance trade connections. Some of the pottery deposited on the sea floor of the harbour of Kioni represents dumped material or cargoes of ancient ships wrecked while trying to enter the harbour (Leonard 1995b: 236). This pottery does not in itself indicate intended interaction between the sea and the land.

Architectural features at the anchorage imply that interaction between land and sea was intentional. These remains include two columns that may have stood at either side of the channel to guide ships as they entered the harbour and the foundations of a seaside structure or storehouse (Leonard 1995b: 236). The sixth century AD structure of Ayios Kononas is located 1.8 km to the northeast of Kioni harbour. A variety of fishing equipment including fishhooks, net weights and needles were excavated from a sixth century AD structure at Ayios Kononas (Fejfer and Mathiesen 1991: 219-220). Even though this material suggests that fishing was important to the local economy at Ayios Kononas, the connection between the settlement and the harbour was not strong enough to warrant the formation of a separate coastal settlement.

The most archaeologically visible forces influencing sea-based communication in the Akamas Peninsula Survey Zone was the export of quarry stone and agricultural produce. Although transporting goods by sea was often easier, it was reliant upon

local weather conditions and the sailing season. Travelling from port to port along the coast of Cyprus often involved frequent delays while waiting for good winds (Murray 1995: 43). For example, it took N. Le Huen four days to move from the port at Salines to Paphos in 1488 (Cobham 1908: 52; Murray 1995: 43). Moving between the eastern and western coastlines often required “an unusually favourable combination of winds” (Bekker-Neilsen 1995: 125). Local sailing conditions influenced movement of both grain and stone between the eastern and western shores of the Akamas Peninsula. Rugged and potentially dangerous Cape Arnauti was avoided in favour of destinations eastward along Chrysochou Bay towards Arsinoe.

The clear association between berths and harbours in the northeastern part of the survey zone, and extensive Hellenistic-Roman terracing discussed in Section 6.1, indicates that they played a role in the export of agricultural produce within or off the peninsula. This correlation further implies that small berths located at the northernmost part of the survey zone at Cape Arnauti were involved in the small scale import/export of agricultural produce off the island that took place prior to, or alongside, the more extensive import/export of agricultural produce via the harbour and pier at Fontana Amorosa.

Unlike the marble and porphyry quarries of Egypt and Anatolia, the stone quarried within the peninsula was neither exotic nor of high enough quality to be shipped long distances. Quarried stone from Ayios Nikolaos and Khamilis Island was destined for building projects on the east coast of the peninsula such as the mole with breakwater at the fishing port at Latchi while building material needed on the west coast came from either local quarries such as Ayios Kononas, or if larger quantities of stone were needed, from quarries at Cape Drepanon (Fejfer and Mathiesen 1995: 55; Leonard 1995b: 229). The limestone quarries at Ayios Nikolaos and Khamilis Island were the closest available source of stone to the Roman city of Arsinoe. As previously discussed (Section 6.1), the city’s territory

likely included the Akamas Peninsula. Therefore it is logical that Roman Arsinoe requisitioned building material from Ayios Nikolaos and Khamilis Island quarries. Even though no harbour has yet been recovered from Marion/Arsinoe, the large city must have had both sea and land-based supply lines.

The Akamas Peninsula was an active maritime landscape with evidence of at least two levels of sea-based interaction – those ships that stopped in the berths and harbours for refuge from stormy seas and never came into contact with the people of the Akamas, and those local people who relied on the sea for their livelihood – whether for small scale fishing and travel to/from local markets or for exporting building stone to ports in Arsinoe.

6.2.2 Communication by land

Roads make up the majority of land-based communication routes in the Akamas Peninsula Survey Zone. Erosion of roads caused by tourists and forestry personnel in the Akamas Peninsula makes identifying ancient communication routes difficult. This recently disturbed landscape reinforces the importance of intensive survey and detailed recording of Road Unit morphology, structural features and their associated settlement and land use data. The roads and paths making up land-based communication routes played a role in bringing secondary and tertiary roads into more extensive contact with sea-based communication routes and regional communication networks such as that from the city of Arsinoe.

There are some general morphological traits and structural features common to many Road Units found within the survey zone. Understanding the formation, location and meaning of loops, ruts and bedrock cut Road Units is necessary in order to address their role in land-based communication routes. The most common morphological features of both contemporary and ancient Road Units are loops, while bedrock cut Road Units and ruts are the most common pre-medieval structural features.

Loops

Loops form when roads split then come together again. Inevitably popularity or traffic size causes one segment of the loop to be larger or more prominent. There are many interrelated reasons for loops to develop, from diversions around obstacles such as potholes, muddy road sections and fallen trees, to the construction of alternative routes that better serve the requirements of certain types of traffic. Loops increase the flexibility of moving via road by offering alternative choices for movement. This is best exemplified on the eastern coastal plains of the survey zone in Figure 6.19, where modern traffic, with modern decisions to go to the beach, produce a continual variety of loops and intersections in an attempt to make the coast more accessible.



Figure 6.19: Modern looping road near Ayios Georgios where modern traffic has created alternative routes of movement to get to the beach.

In general loops develop over time as people make choices about to where to go and how to travel. I have adopted the terms ‘braided channel’ and its definition as a fluvial process by the British Columbia Ministry of Environment, Lands and Parks (1999) to describe the formation of loops. Over time some rivers develop a braided appearance with separate channels diverging and converging around obstacles, leaving bars of land behind. Roads and paths similarly diverge around obstacles to develop loops and abandoned segments. Loops are the physical remains of past decision-making and their form is linked to the amount of time and frequency that communication routes are used. In some cases loops provide evidence for roads

belonging to larger routes of communication. This is illustrated later in this section in the ‘North-South Inland Communication Route’.

Loops are discussed with specific reference to slope constraints on the ‘North-South Inland Communication Route’ that bisects the Akamas peninsula from Fontana Amorosa on the northeast to Kioni on the southwest coast. The socio-cultural reasons underlying the formation of loops on this road, such as personal choice, resource use and associated cultural values, are integral to understanding the function of this communication route and its role in the land-based communication routes in the Akamas Peninsula Survey zone.

Structural features

Bedrock cutting and ruts are the most common structural features found among Road Units in the Akamas Peninsula Survey Zone. These features indicate commitment and long-term investment in the construction and maintenance of the road surface. The characteristics, location and function of these structural features are described first, while the role of bedrock cut and rutted segments of road are expanded in a later discussion of the main North-South Inland Communication Route.

In areas within the survey zone where topography constrained movement or jeopardised road stability, bedrock was cut to make a flat surface. This technique was used in many mountainous regions of Greece and throughout the Roman Empire (Bekker-Nielsen 2004: 95). In most cases bedrock cutting is evident on the inside edge or upslope side of the road surface.



Figure 6.20: Modern bedrock cut section on lower part of road and older more worn bedrock cut section preserved above the modern road surface.

Modern cut bedrock produced by bulldozers or tractor blades is easily distinguished from the older bedrock cut sections (Figure 6.20). The light colour and jagged edges of the cuts produced by modern equipment differ from the smoother cuts formed by smaller cutting implements. The darker appearance of the cuts is a result of prolonged exposure to weathering and erosion.

There is a pronounced relationship between road slope and the presence of bedrock cutting as a structural feature. The average bedrock cut Road Unit has a slope of 4.9 degrees (n=55), while those without bedrock cut surfaces have slopes of 3.8 degrees (n=303) thus indicating that bedrock is most frequently cut in areas with the greatest slope. As discussed later in this section, modifying the topography through bedrock cutting is the first process involved in the formation of the 'North-South Inland Communication Route' while ruts were later additions to the road surface.

Ruts are linear indentations formed for and through movement across a bedrock surface. There are varied opinions on whether or not ruts are formed through wear or through intentional cutting (Bekker-Nielsen 2004: 92-97; Forbes 1964: 102). The importance of ruts stems from how they were involved in the decision to run the cart, sled or sledge repeatedly over the same piece of ground – either forming ruts, or following pre-formed ruts. Implications of such decision-making are discussed more fully in Chapter 7.

How ruts were formed and how they function are related concepts. To Forbes (1964: 102), purposefully bedrock cut Greek and Roman wheel ruts should be found in pairs “carefully hewn and polished and levelled” while having the same span as that of a carriage. The spacing of wheel ruts recorded by Bekker-Nielsen (2004: 92-97) suggests that wheel gauge width of vehicles in Roman Cyprus was 1.44 m. Intentionally formed ruts function to steady and direct the course of the wheels while “lightening the weight of the draught on rocky and precipitous ground,” such as mountain slopes where more stability was necessary (Forbes 1964: 101). Evidence for cut ruts at Kourion in southwestern Cyprus on the Akrotiri Peninsula is shown in Figure 6.21. Ruts cut 25 cm apart and 3 cm deep are documented by an Australian team excavating the Roman theatre in Paphos. These ruts were used as runways for sledges removing marble blocks from the theatre during the fifth century AD (Green *et al.* 2004: 22-24).



Figure 6.21: Ruts found in direct association with quarrying in the Akrotiri Peninsula (photograph taken by Luke Sollars)

Worn ruts provide contrast to the smooth and even appearance of cut ruts. In general they are formed through repetitive use usually associated with heavy industry like stone quarrying and timber extraction. Worn ruts often have irregular grooves that are found in pairs corresponding to the width of the vehicle. Large and wide wheel tracks formed by heavy wagons and sledges are present at Mons Claudianus in Egypt's Eastern Desert, while smaller ruts for the transport of timber and smaller quantities of quarry stone are suggested from a variety of ancient Greek sources (Diodorus 14.43.4-5; Maxfield 2001: 164-165; Meiggs 1982: 330-340).

A less exclusive interpretation of cart ruts is suggested by Sagona (2004: 45-57), who believes that many of the ruts classified as cart tracks in Malta (especially

those at Clapham Junction) are actually the fossilized remains of field furrows from the prehistoric period. She suggests that these ruts were formed through the intensive rehabilitation of the land during the prehistoric period. Drawing on parallels with farming techniques on the Aran Islands off the coast of Ireland, Sagona suggests that the ruts were cut in the bedrock to facilitate draining and channelling of water, while in a layer above these channels soil was composed mainly of seaweed. Although this interpretation is not applicable to ruts located within the survey zone, it highlights the point that ruts were multifunctional – in this case used for agriculture as well as communication.

Literature on ruts is permeated with assumptions about Roman roads. Ruts are often attributed to periods other than Roman, because it is assumed that Roman roads were always sophisticated and well made (Sagona 2004; Staccioli 2003; Bekker-Nielsen 2004). Such views act to underestimate the flexibility and variability of road making during the Roman period. Not all Roman roads were straight, paved or well made. Instead, data from the survey of roads in the Akamas Peninsula Survey Zone strongly suggest that the structure of roads varied because they served the immediate needs of the population whose lives focused on agricultural production and resource extraction.

In the Akamas Peninsula Survey Zone ruts range between 10 and 30 cm deep and 8 cm wide. When ruts are found in parallel pairs they average 70 cm apart. Located both on the coastal plains and the higher slopes of the inland mountains, ruts are not confined to any specific location. Those located in the mountains have an average slope of 6.6 degrees (n=17) while those found outside the mountains have an average slope of 3.8 degrees (n=12). The longest ruts (Road Units RU0263 and RU0264) are 355 metres long and located on the western coastal plain. Although preservation may play a role in the variability shown in these Road Units the fact that they are found both in pairs and singly, on heavily eroded roads, abandoned roads, on both steep and gentle slopes, suggests that there are other factors

involved. Instead, the inconsistent nature of ruts is related to how they were formed and used.

To determine if ruts were intentionally constructed the association between the presence of bedrock cut Road Units and ruts was calculated. Fifty-five percent of the 29 bedrock cut Road Units also had ruts. The lack of correlation between the bedrock cut units and those with ruts strongly suggests that ruts were not created in one way for one specific function. Instead, ruts were a type of technology that was applied where they were necessary. In some cases ruts were formed through repeated use, while others were constructed intentionally.

In the Akamas Peninsula Survey Zone resource extraction plays a large role in the formation and/or construction of ruts. The narrow width between parallel ruts in the Akamas does not correspond to the average widths of carts ruts found elsewhere during the Roman period. Instead, these ruts served to augment road stability when quarry stone and timber were transported by sledge or sled. Similar accounts of sledge or sled ruts for timber are attested in both Greece and Cyprus. One metre wide ruts were documented by Bekker-Nielsen (1995: 131) in southern Cyprus. He suggests that the ruts were too narrow to be produced by wheels and instead were formed by sledges that transported timber to the coast. Documents collected from Venetian Navarino by the Pylos Regional Archaeological Project include accounts of the Venetian General Francesco Grimini who states “cattle and buffalo were used to transport timber on sledge from inland woods to the coast” (Davies 2004: 85).

Transporting timber or quarry stone did not require double ruts. Where the slope of Road Units was minimal, one rut was just as effective as two. For example, RU0263 and RU0264 have less than four-degree slopes. A sledge travelling this road only needed one groove to maintain its course. In places where the slope is greater, ruts are found in clusters. I suggest that these multiple ruts enabled vehicles

to pass each other safely in areas where their loads could easily become imbalanced.

Ruts associated with the harbours of Fontana Amorosa, *Plaki* and the coastal area at RU0263, RU0264 and RU0266 on the west coast of the Akamas Peninsula, suggest that resources collected inland were transported by sled or sledge to the sea. In the Hellenistic and Roman period, long distance transportation of heavy goods by sea was favoured over transport by land. According to Dionysius of Halicarnassus (20.15-2 in Meiggs 1982: 334), trees were felled near the sea so that they could be transported more easily.

The diverse characteristics of surveyed roads suggest that the pre-medieval network of communication was not built as a single project, but instead was gradually developed in response to changing economic and settlement patterns. As argued in the below discussion, loops and ruts located on the main North-South Inland Communication Route were constructed during the Late Roman period when communication routes were expanded and renovated. Connecting sea-based communication routes with overland routes was essential for marketing goods (Vann 1997: 313). The increasing demands for resources such as timber, stone and especially agricultural produce made it necessary to alter pre-existing land and sea communication routes. The North-South Inland Communication Route, harbour and quarry at *Plaki* and Khamilis Island were part of this change.

The North-South Inland Communication Route

The North-South Inland Communication Route is made up of one main North-South road with preserved segments from different road building episodes preserved as ruts and loops. Like the braided river example, channels have diverged and merged off from the main road. For the remainder of this section, I use the term ‘North-South Inland Road’ to refer to the main channel while I use the

term 'North-South Inland Communication Route' to refer to the whole communication route including the loops.

Today the North-South Inland Communication Road is made up of a 6 to 8 metre wide firebreak and forestry service road (Figure 6.22) that run from Fontana Amorosa in the north to the port at Kioni on the southwest coast of the peninsula.

The North-South Inland Communication Route comprises 29 Road Units. Road Units RU0188-RU0209 have northern aspects and are tentatively associated with the Roman settlement and harbour of Fontana Amorosa: three of these are loops while seven units have ruts. Road Units RU0319-RU0322 are located on the peninsula's saddle while RU0323-RU0326 have southerly aspects. The boundary of the survey zone lies southwest of RU0326 and therefore the remaining two kilometres of the North-South Inland Road that ends at Kioni anchorage on the west coast were not surveyed.

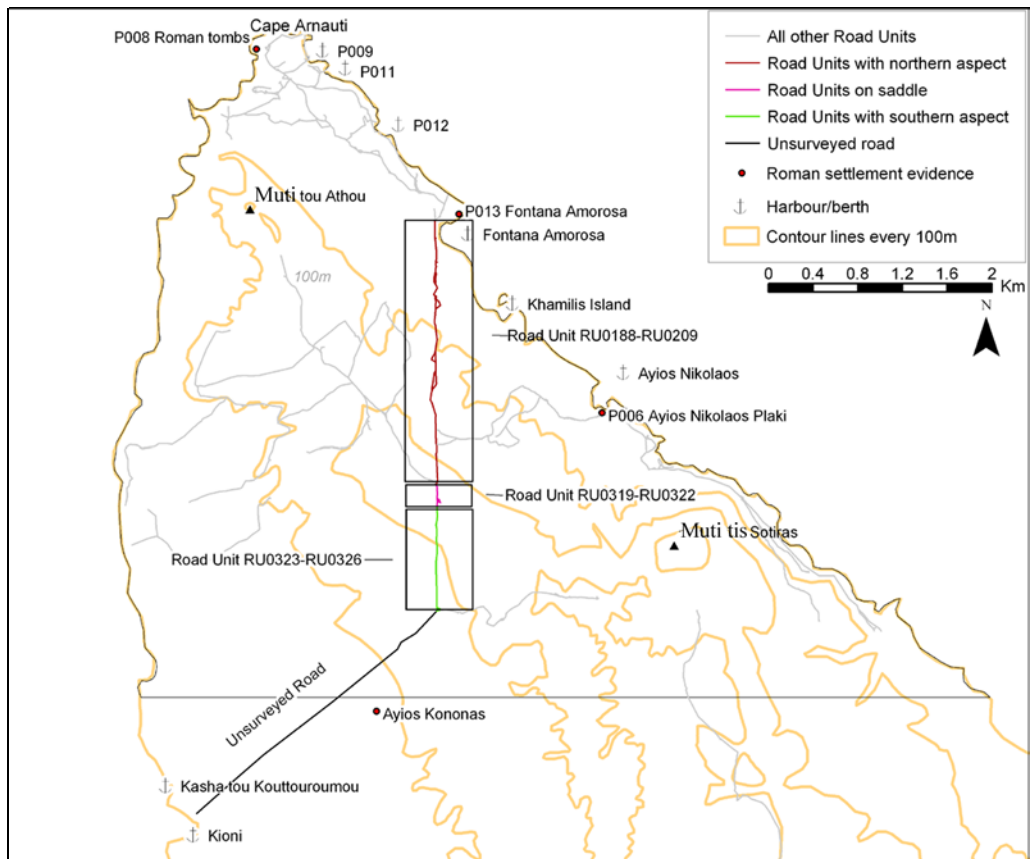


Figure 6.22: Map of the North-South Communication Route and photograph facing north to the settlement and harbour of Fontana Amorosa

Bekker-Nielsen (1995: 128-129) included this road in his study of Roman roads as part of the Danish Akamas Project in 1993 primarily because of its linear alignment. Survey evidence suggests that during the pre-Medieval period this North-South Inland Road was a primary route of communication where secondary routes branched to coastal areas such as *Plaki* or routes that travelled the central ridgeline. Intensive block survey and detailed recording of the roads that form this route make it possible to comment on the formation, function and role that the route played in land and sea-based communication.

In most cases the ancient road surface is located within the firebreak road. The old road is identified by its often bedrock cut surface and the presence of structural features such as ruts. The ancient road alternates between the eastern and western sides of the firebreak road (Figure 6.23).



Figure 6.23: Ancient road surface with ruts shown on the left (eastern) side of the forestry road looking southwards towards the inland ridge of the peninsula.

In areas where extensive bulldozing and bedrock cutting has taken place to construct the modern road, the ancient road surface is often found preserved at a level above that of the modern road.

Loops are predominantly located on the eastern side of the peninsula not far from the harbour and settlement at Fontana Amorosa (Figure 6.24). They are characterised today by their ‘D shape,’ with one straight side that forms part of the modern forestry road and one looping road that diverges then re-unites with the modern road. Loops function as alternative courses to the steep North-South Inland Road. In all cases the looping segments of these Road Units have slopes that average six degrees while the straight North-South segments have steeper eight degree slopes.

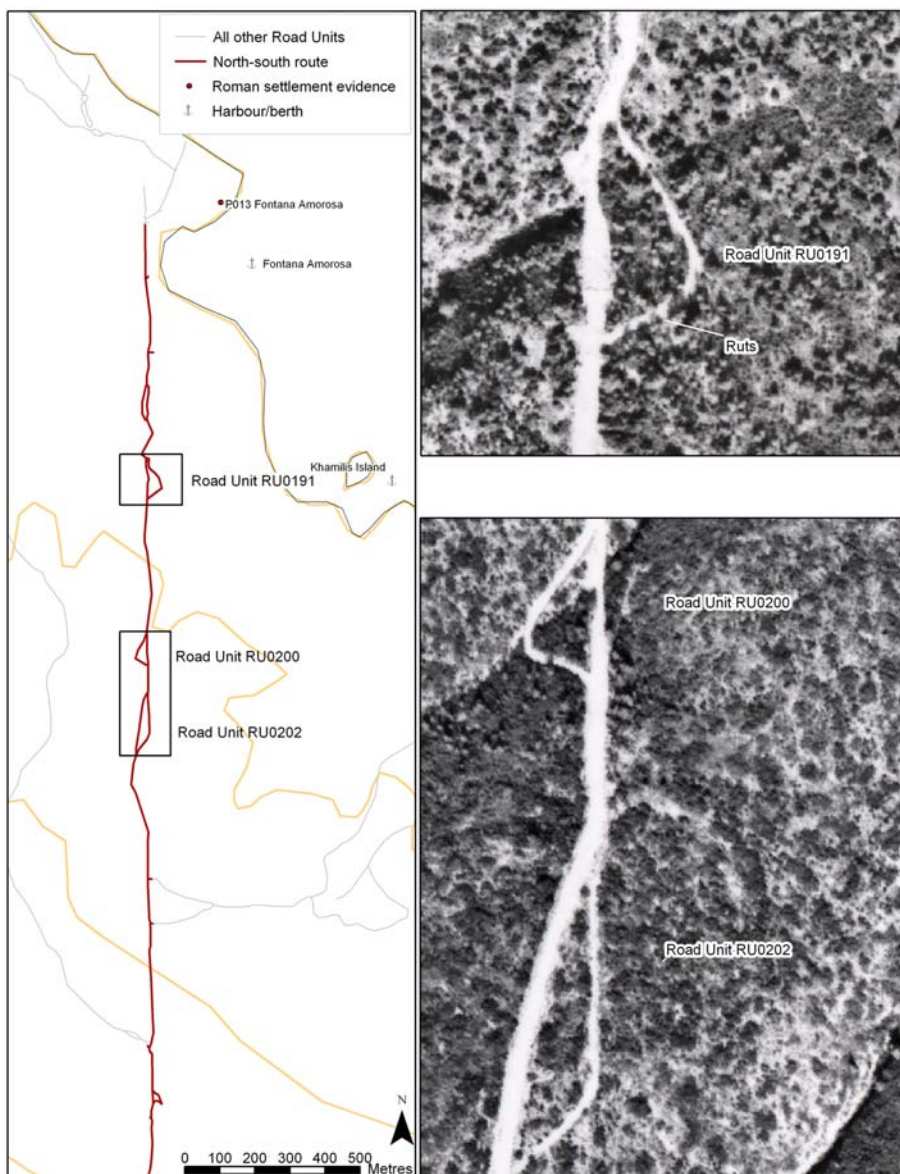


Figure 6.24: North-South Communication Route and loops (RU0191, RU0200 and RU0202)

Ruts are recorded along both straight and looping segments of the North-South Inland Road. The best examples of ruts occurring on straight road segments are located within Road Units RU0324 and RU0325 that have southern aspects and slopes between four and six degrees. In both units between six and seven ruts are located to the side of the modern forestry road wherever bedrock is exposed.

The relationship between ruts, looping Road Units and slope suggests that the more gradually sloped looping roads served a function dissimilar to that of the straight roads. The association between ruts and loops is found in Road Units RU0191, RU0200 and RU0202. In all cases ruts are found on the eroded bedrock surface of the looping segments. The best example of the association between loops and ruts is from RU0191 (Figure 6.25), where criss-crossing ruts are on average 8 cm across and 12 to 15 cm deep. This Road Unit has the narrowest parallel ruts in the survey zone measuring between 41 and 46 cm from inside edge to inside edge.



Figure 6.25: Preserved crisscrossing ruts located in RU0191

Road Unit RU0202 is a looping Road Unit with ruts and bedrock cut features. In this case, both the looping and the straight segments of the unit have bedrock cut

sections. Like the others, the slope of the looping segment is less steep than the straight North-South section. An elevated bedrock platform from a previous road surface is located to the west of the straight segment, while the curved or looping section of the Road Unit shows evidence for bedrock cutting and ruts. The fact that both parts of the loop are bedrock cut suggests that the loop preserves more than one episode of road building. The North-South Inland Communication Route is composed of roads that offered alternative ways of moving north and south.

The scars from ancient bedrock cutting and the remains of bedrock platforms along this main North-South Inland Road – including those found on the straight sections of RU0191, RU0200 and RU0202 – suggest that this straight road course belongs to one time period, while the looping sections found associated with ruts belongs to another. Although it is possible that the North-South Inland Route was formed in the Roman period, the scatter of pre-Roman period pottery and associated terracing throughout the area suggest that the communication route linking the eastern and western coasts was established before the Roman period. It is possible that the looping sections of the North-South Inland Road existed alongside the straight – offering an alternative course for those carrying heavy or unstable loads.

Ruts and loops are the remains of large-scale heavy transport. Stone and timber are the two resources present in the survey zone that are large and heavy enough to require such road modification. The northernmost point of the North-South Inland Communication Route is directly associated with Roman Fontana Amorosa. Because this route does not connect to the quarries of Khamilis Island or *Plaki*, it is unlikely that quarry stone was transported via this route. If indeed the movement of quarry stone were the primary purpose for the route, then surely the road would have been altered to serve these quarries.

It is more realistic to suppose that timber was transported via this communication route. Timber could be taken from the interior of the peninsula on narrow sleds or

sledges to both the east and west coasts by this route. Although timber extraction likely started on the Akamas Peninsula in the Hellenistic period, settlement data suggests (Section 6.1) that timber extraction and the formation of loops and ruts date to the Late Roman period. Stone foundations from a storehouse at Kioni dating from the Late Roman period could easily have provided storage for resources extracted on the peninsula such as timber and agricultural produce (Leonard 1995a: 147). Thus timber could be transported from the harbours at Kioni and Fontana Amorosa onwards to regional and extra regional markets.

The North-South Inland Road enabled day-to-day local and regional communication between the inland areas of the peninsula and either coast regardless of bulk or weight of material transported. This overland route was likely used for heavy transport during those times of the year when weather, sailing conditions and access to labour made sea-based travel difficult (Adams 2001: 180; Bekker-Nielsen 1995: 125; Knapp 2003: 569-570).

In the Late Roman period communication across the peninsula changed dramatically. This change corresponded to the intensification of agricultural production and extraction of resources. Communication routes were at the heart of this phenomenon where routes such as the North-South Inland Road were altered to accommodate different types of traffic carrying different goods between the east and western coasts. This expanded communication opened new markets for goods from the Akamas Peninsula like stone, timber and agricultural produce. The changing communication in the Late Roman period is illustrated in the relationship between the Late Roman settlement at Ayios Kononas and the port of Kioni located on the west coast of the Akamas and studied by the Danish Akamas Project.

The port of Kioni is commonly associated with the settlement of Ayios Kononas (Section 6.1) (Leonard 1995a: 146-147). Interestingly there is little pottery found at Ayios Kononas that dates to the early and mid Roman period, the period when the

port of Kioni was most active (Leonard 1995a: 146-147). Similarly, pottery from the Late Roman period, when the site of Ayios Kononas was at its height of occupation, was not found at the port of Kioni. Leonard (1995a: 147) suggests that this discrepancy between activity at the harbour and activity on the mainland may be related to a change in the flow of traffic to and from the site of Ayios Kononas. Data from Road Unit survey suggests that the changing settlement pattern in the Akamas during the Late Roman period altered the focus of communication so that timber and agricultural produce that previously were transported through the western harbour now moved north (via the North-South Inland Communication Route) across the peninsula to eastern harbours like Fontana Amorosa. Similarly, it is possible that produce was transported southwest via the west coast to serve the needs of the large Roman settlement at Drepanon (Bekker-Nielsen 1995: 113; Leonard 1995a: 146-147).

Following the seventh to eighth century AD, the landscape of the Akamas fell into decline and the settlements of Fontana Amorosa, Ayios Kononas and *Plaki* were abandoned (Fejfer and Mathiesen 1992: 73). During this period the primary North-South Inland Communication Route fell out of use and was not used again until the Modern period.

Eastern peninsula communication

In the Akamas Peninsula both settlement and communication shifted inland and southeast at the end of the Late Roman period to the estates and estate lands of Pyrgos tis Reginas, Ayios Nikolaos and *casals* to their southeast (Section 6.1). The changing focus of settlement and communication away from the sea prompted the expansion of land-based communication routes. In some instances pre-existing Roman roads were used while new paths were constructed to facilitate interaction between new estate buildings, *metochia* and estate lands. As much of this area is outside my survey zone, evidence for medieval period interaction comes primarily from settlement data.

Evidence for the monastery of Pyrgos tis Reginas' dominant role in the formation and maintenance of communication routes in the Akamas Peninsula Survey Zone is shown in how the monastery was linked to a network of roads and paths that facilitated interaction between its lands and buildings. The position of Pyrgos tis Reginas as a focal point for activity between *metochia* (P024 *Magnesia*, P031 *Glyki Mersini*) and Ayios Georgios church is preserved today in tourist paths, forestry roads and Road Units as illustrated in Figure 6.26.

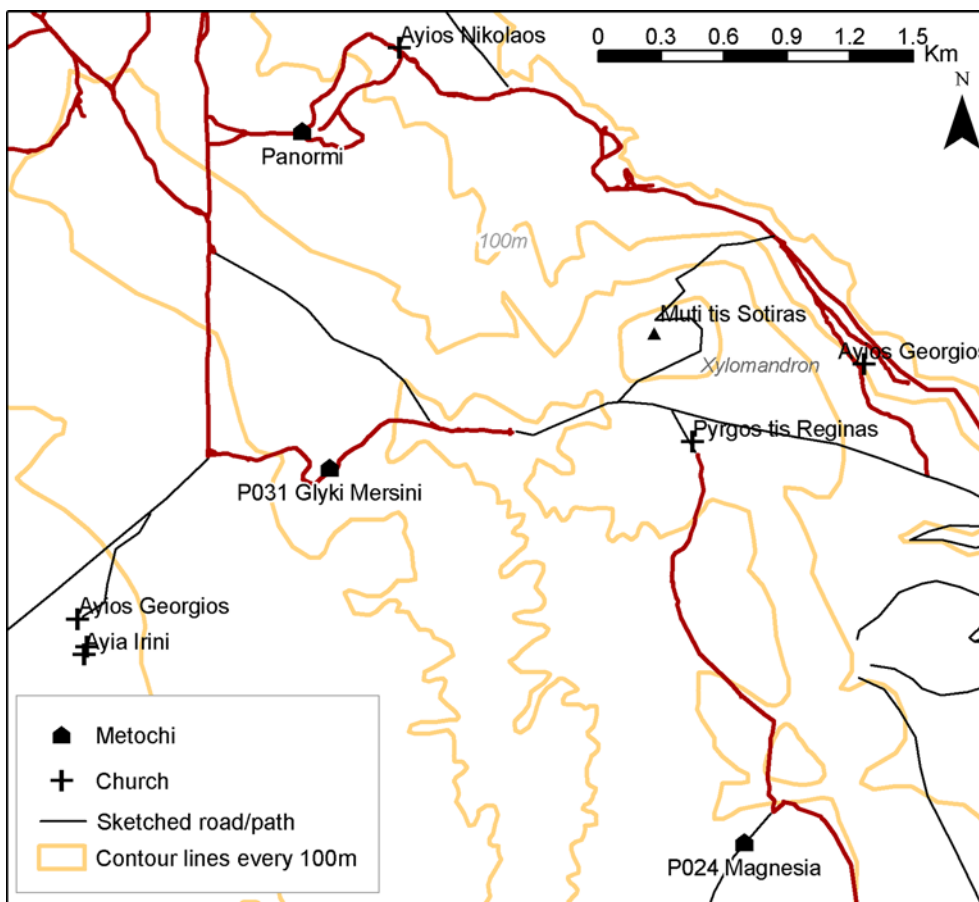


Figure 6.26: Pyrgos tis Reginas monastery and metochia shown with both surveyed and sketched road/paths

In Section 6.1, I proposed that the structures P024 *Magnesia* and P031 *Glyki Mersini* functioned as storehouses on the monastery's estate land. These structures

stored produce before it was sent to the central grange or warehouse that existed in association with Pyrgos tis Reginas (*cf.* Coureas 2003: 97-105). The monastic officers or wayfarers likely visited these *metochia* from Pyrgos tis Reginas to supervise the harvest and incoming crops (*cf.* Coureas 2003: 97, 105-107). Roads found associated with the structures both date to the pre-Medieval period. Surveyed Road Units associated with P031 are RU0332-RU0334, while the nearby RU0330 shows evidence of ruts. Although the road that passes P024 *Magnesia* was not surveyed, it is associated with a Roman period road investigated by Bekker-Nielsen (1995: 126-128) as part of the Danish Akamas Project. These roads were involved in the daily movement of people to and from their fields while they were also involved in the seasonal transport of produce to a central grange.

Surplus produce was transported onwards to local and regional markets by land or sea. The settlement of Polis provided a consistent regional market for goods produced on estates throughout the Medieval and Ottoman periods. In 1565 it was inhabited by 220 *francomati* (Grivaud 1998: 471). Estate land may have existed alongside the churches of Ayia Irini and Ayios Georgios on the west coast of the Akamas, thus providing a local market for goods produced both by the monastery as well as other estates working in the area (Gunnis 1936: 392-393).

Interaction in the Akamas Peninsula Survey Zone changed little between the Medieval and Ottoman periods as medieval estates were converted into *chiftliks* (Section 6.1). The previous estates of Ayios Nikolaos and Yollous were converted into *chiftliks* at some point during sixteenth century. By 1881 both Yollous and Ayios Nikolaos lands were listed together with their communal labourers and houses (Grivaud 1998: 478). This relationship between the communally owned and operated Ayios Nikolaos and Yollous *chiftliks* is represented in the communication routes that linked them.

The segments of the route linking these two *chiftliks* are preserved as Road Unit RU0352-RU0358 (Figure 6.27). The path was not surveyed beyond RU0358 where it crosses a heavily eroded road described by Bekker-Nielsen (1995: 119-122) as a switchback Roman road. Beyond this point the road was followed to where it crosses the Argaki tou Pyrgou River to Yollous *chiftlik*. Today buildings belonging to this *chiftlik* are used as a *mandra* for a large herd of goats.

The path associated with Ayios Georgios was founded as a Medieval period communication route associated with the monastic estate at Pyrgos tis Reginas (Section 6.1). When the estates transferred ownership in the Ottoman period communication routes were adapted and expanded to suit the new needs of estates.

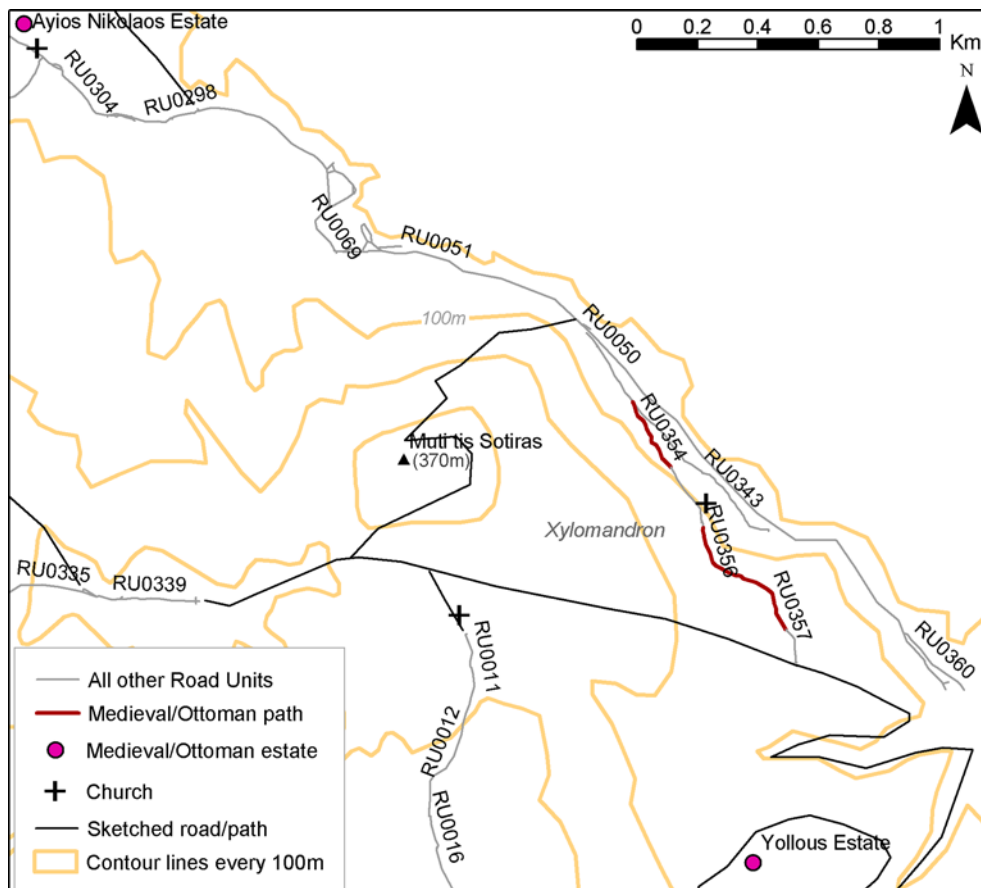


Figure 6.27: Path below Ayios Georgios Church connecting Ottoman-Modern period Ayios Nikolaos and Yollous Chiftliks This path may also represent a medieval communication route between the estate of Ayios Nikolaos and Yollous.

Yollous and Ayios Nikolaos chiftliks were linked through ownership, administration and communication. Individuals from both chiftliks likely worked alongside each other – commuting between estate lands daily, weekly or seasonally and transporting goods via estate owned and maintained communication networks. Both sea and land based communication linked Ayios Nikolaos and Yollous chiftliks to local, regional and intra-regional markets. The harbours at Ayios Nikolaos Plaki and/or Latchi were likely involved in the transport of goods to local markets along Chrysochou Bay to Polis or to larger intra-regional centres like those along the coast of Turkey. Coastal roads to the east of the survey zone likely had not changed since the Medieval period when they were used to move produce to Polis. Ayios Nikolaos chiftlik was still in operation alongside Yollous in the British Colonial period. Villagers from Neochorio commuted to and from the chiftliks into the early 20th century (Savvas Theodorou interviewed by Alphas 2004).

It is evident from the construction of the British Colonial salt taxation house on the top of Muti tou Athou that a considerable part of the population continued to travel to Cape Arnauti and Fontana Amorosa to tend goats and illegally collect salt in the latter part of the 19th and early 20th century (Savvas Theodorou interviewed by Alphas 2004). Unfortunately communication routes in the Akamas Peninsula Survey Zone postdating the Ottoman period, and predating the formation of the Akamas State Forest, were not located through transect or reconnaissance survey. People may have travelled by sea to the peninsula, created less permanent paths, or used pre-existing communication routes.

6.3 Long-term interaction within the Akamas Peninsula

Today tourists visit the harbours of Ayios Nikolaos and Fontana Amorosa on pleasure cruisers organised through the port at Latchi, while a few of the brave or foolish take rental cars along the bumpy eroded coastal road, or walk the 8 km from the Baths of Aphrodite to Fontana Amorosa. The Akamas Peninsula

landscape is viewed as an isolated and remote sanctuary known for its wildflowers and secluded bays.

The busy landscape of the pre-Medieval era is seen in terracing, concentrations of pottery and quarry scars. The valuable resources of the Akamas were managed and extracted via a network of interrelated sea and land communication routes. The peninsula was a place to shelter passing boats while offering a point of exchange where imports were sold, ideas exchanged and produce exported to local and regional markets.

The Late Roman period was the most active period on the peninsula, when land and sea communications were expanded and renovated to accommodate the changing needs of the population. During this period new terracing techniques were developed, stone quarries were constructed at *Plaki* and Khamilis Island, and timber extraction intensified in the upper reaches of the peninsula. Boats laden with quarry stone and produce were destined for the eastern port of Arsinoe, while sledges and sleds carried timber along rutted roads within the North-South Inland Communication Route to the harbours of Kioni and Fontana Amorosa.

By the seventh century AD, activity in the Akamas Peninsula shifted eastwards and inland. Landless peasants worked estate land while sea-based communication routes were replaced with a more entwined network of paths connecting medieval estates to their land and *metochia*. Communication needs changed little between the Medieval and Ottoman periods, as estates were replaced with Ottoman period *chiftliks* that had similar needs.

Other than the renovated salt tax house, there is little evidence on the peninsula to suggest that activity or interaction took place in the British Colonial period. Smaller scale and possibly family based interaction took place on the peninsula during the British Colonial period, when people from villages like Neochorio

travelled to the peninsula to graze goats and collect salt (Savas Theodorou interviewed by Alphas 2004). Although it is tempting to assume that these individuals simply used roads and paths that existed from previous periods, it is unlikely that communication can be distilled into such a convenient form. Interaction continued, and continues still today to change on the peninsula where the changing needs and values of people reflect and are reflected in the changing patterns of interaction.

7 Cyprus: An Island Wide Study of Communication

Space is negotiated in part through the construction, maintenance and expansion of communication routes. Roads and paths are formed, given meaning and redefined by individuals and/or groups travelling to and from fields, extracting resources, moving produce to trade centres, travelling to weddings and *paniyiria*. Landscapes – both maritime and land-based – act as a medium for interaction and at the same time influence how groups and individuals relate to each other and the world around them. Roads and paths embody elements of social relationships from which they are derived and as a result they are in a continual state of change.

This discussion highlights the mutually transformative dialogue that exists between people, their medium of transport and the landscape, thus linking the material form, movement, maintenance of roads and paths and their role in perceptions of landscape. While data in preceding chapters were presented and interpreted in the context of specific regional landscape histories, within this chapter I focus on how the material form of roads and paths is influenced by the context in which they are constructed. Perceptions of landscape are influenced by whom, when and why roads and paths were constructed and maintained. The act of moving along roads and paths evokes memories of these activities and in turn influences how people see themselves and the world around them. Roads and paths are used in unequal power relationships as a means of establishing order and control. As a result, roads and paths may be reinterpreted in this light to deconstruct power relationships. These themes are relevant to the study of communication routes throughout the island of Cyprus and may be applied to other Mediterranean landscapes with similar historical and archaeological backgrounds. This discussion engages with the following questions and issues:

- What influence do land use and settlement have on the location and formation of roads and paths?
- Can path formation and maintenance be viewed as embodied action?
- How do traffic type, its speed and frequency influence perceptions of landscape?

- What role do movement and repetitive decision-making play in the formation of communication routes?
- Does previous experience maintaining and constructing roads and paths influence one's perception of the road, path or communication route? Could this reflect a commitment to long-term communication?
- What social aspects make roads an efficient mechanism of control drawn upon by foreign powers in colonial situations?
- Can roads and paths play a role in reinterpreting power relations?

7.1 The socially embedded material form of roads and paths

Land use and settlement context are vital to the interpretation of roads, paths and communication routes. The way that land is used is inextricably linked to where people live and how they interact. It is evident in all survey zones examined in this thesis that land use and settlement played a role in the form, location and use of communication routes. Behind this primarily political and economic role lay a support network of social relations whose preferences for interaction always influenced road and path construction, maintenance and expansion.

Evidence for agricultural production in survey zones comes mainly from terracing and field boundaries (Chapter 4), while the presence of mines, quarries, loops and ruts suggest timber, stone and mineral extraction (Chapter 6). Pottery concentrations, churches, individual structures and abandoned villages suggest the presence of settlements. The relationship between communication routes, settlements, resource extraction and agricultural production is evident throughout all survey zones considered.

One of the best examples of this entwined relationship is from the North Palekhori Survey Zone where changing settlement distributions influenced patterns of movement and prompted changes to path morphology. The villages of Appis, Ayios Nikolaos, Ayios Georkis and Maroullena were abandoned in the late sixteenth century (Grivaud 2002: 55). Travel to village fields along the *Dhromos*

tou Appis continued even though the remaining population moved to Palekhori. The increased frequency and intensity of traffic on paths making up this route prompted the expansion of terracing to reinforce the path surface.

The primary forces influencing patterns of movement in the North Palekhori Survey Zone were changing settlement patterns and traffic frequency while in the Mandres (Chapter 5) and Akamas Peninsula (Chapter 6) Survey Zones the main force behind changes in path location and morphology was changing resource extraction. In the late Roman period agricultural production was intensified and resource extraction was expanded to include stone quarrying while timber cutting forced the modification of roads and sea routes. Ruts and loops along the North-South Inland Communication Route are the main evidence for changing resource extraction on land during this period (Chapter 6.2.2). Loops were formed as alternate routes to facilitate the heavy transportation of goods. Sledges and sleds transporting timber from inland to coast used ruts both made intentionally along the road and formed through use.

Small berths along the eastern side of Cape Arnauti suggest a different, more small scale, possibly subsistence based connection to the sea than what is represented at the larger harbours with associated settlements at Fontana Amorosa and Ayios Nikolaos (Chapter 6.2.1). The Roman period pier at Fontana Amorosa and expansion of small dry stone field terracing suggests a relationship between agricultural production and the expansion of shipping routes and their facilities. Stone quarries at Ayios Nikolaos harbour and Khamilis Island berths imply that sea routes were expanded and diversified during this period. Where sea communication was most prominent, increased interaction prompted the formation and expansion of coastal settlements such as Neochorio *Plaki* and Fontana Amorosa.

Movement changed dramatically in the Mandres Survey Zone (Chapter 5) during the nineteenth and twentieth century. Mountain villages and seasonal settlements relied on trading goat, garden and wood resources with villages on the plains.

When the Adelphi Forest boundary was delimited between 1881 and 1896, these activities, and settlement in general, ceased in the forest. In some cases the boundary between State Forest and private land was not enforced until after the cadastral survey of 1929 (Christodoulou 1959: 73; Given 2002: 8-11). Although the morphology of paths did not change because of Forest Delimitation, the pattern of movement between the plains, foothills and forest gradually changed throughout the early 1900s. Daily movement of people into the forest to graze goats, collect wood and travel between seasonal and permanent settlements either stopped or went ‘underground’ during the early 1900s. Imposed changes to the way that land was used and how and where people lived transformed both movement along, and the location of, paths. Paths were diverted or constructed anew to skirt the forest boundary, avoiding illegal entry into the forest. Paths still entered the forest though at chosen points outside the watchful gaze of forestry personnel. The demarcation of the Adelphi State Forest influenced settlement, land use and movement – every aspect of the population’s way of life. Tension between the state officials and villagers was expressed in policy enforcement and resistance.

Although each survey zone is different in terms of time periods and relationships represented, there is a noticeable pattern in the role that roads and paths played in the lives of people. The link between resource extraction, settlement patterns, and the form and location of roads and paths is not surprising. Human interaction is a fundamental element that underlies where people live, how they feed themselves and with whom they communicate. As physical representations of interaction, roads and paths play a vital role in this relationship, changing as aspects of life prompt other changes.

It is essential not to forget the role that individuals played in the construction, maintenance and use of roads and paths. Social differences within these communities ensured that people reacted to and interacted with roads and paths in different ways. This is the case for all roads and paths investigated as part of this research. The most archaeologically visible remains of communication may

represent the dominant interaction but one must realise that the actions and perceptions of individuals existed alongside these dominant actions and equally influenced the formation, use and maintenance of communication routes.

Cultural differences and personal preferences influenced how these changes are represented in the survey data. Road modification for the Late Roman period inhabitants in the Akamas involved large-scale bedrock cutting to produce loops and ruts while sea-based routes required piers and quarries. Villagers from late medieval period Palekhorri applied techniques used for terracing fields to modify paths structurally. In the Mandres Survey Zone, paths were not structurally modified in response to changing settlement and resource use; instead the location of paths changed in response to imposed policy changes.

7.2 The formation and maintenance of roads and paths

Roads and paths are products of daily practices that reaffirm, redefine and reproduce social and cultural relations. By their very nature roads and paths are types of technology created through and by repeated human interaction. Their form and course are the result of individual choices to build, maintain and follow them. As a result, each road and path is distinct. The morphology of roads varied considerably between survey zones due to modern traffic disturbances. Unlike roads with their variable preservation, paths located throughout the survey areas displayed comparable characteristics. The most structurally similar paths, and therefore the focus of the following discussion, are those that follow topographic contour lines (Chapters 4 and 5).

Survey data disprove the common misconception that paths are informal supplements to a formalised and planned road system (Bekker-Nielsen 2004: 81). Whether or not a path is formal is a case of the administrative structure that underlies its construction. Both roads and paths could be constructed in a formalised manner. In many cases paths were formed in stages where the initial step of the process involved one person walking across an area empty of

communication routes, while the most important stage took place when a second person decided to follow this initial route. As more people followed the path and agreed that it was a good 'way to go,' it was formalised through complete or partial structural modification.

A system of planned paths, on the other hand, involves intentional construction along a pre-planned route, usually under the administrative control of a powerful body with a specific goal or agenda such as an estate, monastery, lumber supplier or quarry owner. It is likely that systematically constructed paths will display consistent characteristics (morphology and structural features) throughout their length as a team of workers construct it over a short period of time. Such paths may take more ambitious routes of travel that required more organised planning. The fact that there was no such path located in any of the survey zones suggests that paths are usually constructed gradually as in the first example, or that stylistic variation is common to all paths regardless of control mechanisms involved in their construction, thus making it impossible to distinguish planned from unplanned paths.

Paths are often constructed along topographic contour lines because they are more environmentally stable and less prone to damage by erosion. Paths are identified along contour lines by their characteristically rounded outer edge (Figure 7.1). This edge was either intentionally 'built up' with soil or sediment from the upslope side of the path or accumulated through time as material from upslope eroded and collected on the path surface. In the North Palekhori Survey Zone (Chapter 4), rock fall from the hillside above the path was moved to path's outside edge and became gradually incorporated into the path's surface.

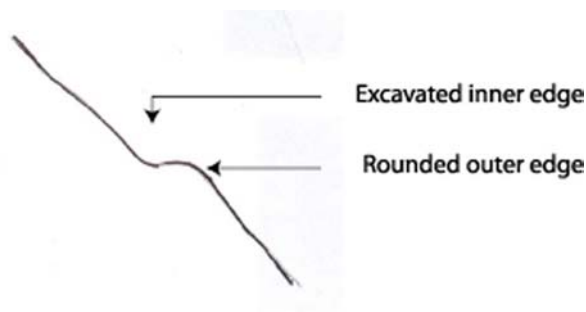


Figure 7.1: Cross section of characteristic path found along topographical contour lines with rounded outer edge and excavated inner edge.

In all cases the paths are excavated into the upslope side of the mountain. This is the most common type of path modification. The association between upslope cutting and the rounded outer edge suggests that these were widely employed techniques used in the construction and stabilisation of paths. These more permanent and archaeologically visible measures were part of the initial construction stage that was then followed by maintenance and tending activities.

Maintenance and tending embodies the entwined nature of material culture and interaction. They are processes that take place on both roads and paths once their initial form is constructed. Although these activities are different for each survey zone, their underlying function is similar. Both show a long-term commitment to interaction via roads and paths. Maintenance activities included both large-scale organised modification of road or path surface and small-scale tending. Tending involved daily actions while larger maintenance activities were organised on a seasonal or yearly basis. Both had social, cultural and economic bases.

There were socio-economic, cultural and political motivations behind path construction, maintenance and tending. In the North Palekhori Survey Zone (Chapter 4), Mandres Survey Zone (Chapter 5) and the Akamas Peninsula Survey Zone (Chapter 6), roads and paths were formalised by medieval estate owners who had an economic commitment to transport produce safely from estate land to storehouses while ensuring that taxes from serfs and *francomati* were collected adequately. Private land ownership in the later Ottoman period changed motivations for path construction and maintenance. Paths providing access to

privately owned fields were co-owned by adjacent landowners who shared responsibility for path building. Cadastral plans in the North Palekhori Survey Zone show this relationship where paths are used as boundaries between segments of land.

Maintenance activities included terracing and bedrock cutting. Terracing is the most archaeologically visible maintenance activity. It was a common technique used to build up the outside edge of the path in the North Palekhori Survey zone (Chapter 4). Bedrock cutting was another maintenance activity that applied to paths in the Palekhori and Mandres Survey Zones (Chapter 5), while bedrock cut roads were more common in the Akamas Peninsula (Chapter 6.2.2). These roads and paths were widened to facilitate movement of vehicles with varied width, surface and stability requirements.

‘Tending’ is a term I use to refer to the daily care of roads and paths. Regardless of how extensive maintenance projects were, daily maintenance of roads and paths was still necessary for the long-term preservation of routes. As part of the daily routines of moving to and from agricultural fields, quarries, harbours, forests and villages, the simplest act of tending – such as kicking a stone to one side of the path or removing a branch from its surface – had an impact upon road and path stability while signalling a social commitment to communication and route formation. Those who were involved in the initial construction and maintenance of the route were more likely to invest energy in further maintenance because they knew the social and economic costs of the route. Tending was part of the habit of moving along the road or path. By tending the path they reaffirmed the value of the route and their role in the wider socio-cultural and economic system.

Repeated movement played an integral role in maintenance and tending practices. Movement along communication routes evoked memories of past maintenance activities – stepping over branches, tripping over stones, passing terracing and bedrock cut sections – and individuals would have been reminded of past maintenance while reaffirming the need for future tending. Those paths with

elaborate structural features, such as the structural terracing and bedrock cutting found in the North Palekhori Survey Zone, were likely the object of village pride and prestige. Paths invested with such value and meaning made daily movement along the route loaded with meaningful visual cues for remembering past tending and the people involved in that tending. At the same time travellers along the path were reminded that future maintenance was important for economic reasons as well as village pride; it was the accepted thing to do. Today this sense of obligation still exists in the North Palekhori Survey Zone where hunters tend parts of the main arterial route, especially in the locality of *Appis*. This connection to the path may have existed longer in Palekhori where land is privately owned and the easiest access to some land is still by path.

Communication routes are corridors for interaction that form through repetitive decision-making. They are more obvious in areas where options for movement are limited by topographic constraints like ridgelines (Chapter 4) and valleys (Chapter 5). The multi-period nature of communication routes is evident in the Akamas Peninsula's 'North-South Inland Communication Route' (Chapter 6.2.2), where the pre-Roman road existed alongside Late Roman looping Road Units.

Two communication routes in the North Palekhori Survey Zone (Chapter 4), *Dhromos tou Appis* and *Strada tou Appis*, were surveyed. These routes illustrate the connection between communication routes, landscape, memory, pride and identity among villagers from Askas, Apliki and Palekhori and how these elements are embodied and played out through the technology of everyday paths.

At least to the older generation of villagers, perceptions of *Dhromos tou Appis* and *Strada tou Appis* cannot be separated from the surrounding landscape. As *Dhromos tou Appis* is situated along one of the few feasible ridgelines for north-south communication, there is no doubt that the dramatic topography of the region contributes to the link between the real and perceived importance of the route and subsequently its role in perceptions of landscape. Communal knowledge of these

routes includes how hard they are to walk, how overgrown they are, where they went and who used them.

It is interesting to note that in many cases individuals who never travelled the paths themselves were able to describe these communication routes to me. *Dhromos tou Appis* is certainly the best-known communication route in the Palekhorri region, although when prompted most villagers did remember *Strada tou Appis*. Even if people had not travelled the paths they know enough about them to point them out from afar and describe where they go. Thus, the communal knowledge and memory of these paths are integrated into the communal identity and pride of the local population. These routes functioned as corridors for interaction, which were widely known and highly respected.

7.3 Landscape and movement

Movement is the catalyst that transforms, and is transformed through, the relationship between people, their medium of travel and the landscape. Not only does movement influence our perceptions of landscape by synthesising our narrative understanding of the world and ourselves, but the ways that we move reflect, and influence, these perceptions (Tilley 1994: 27-31). Movement solidifies the course of the route in the context of its surrounding meanings. Survey results show several examples of this relationship.

The daily movement of villagers to and from their fields using the paths of *Dhromos tou Appis* (Chapter 4) was punctuated with stops to mend paths, tether donkeys and readjust loads, areas where travel was slowed by precariously winding zigzagging segments and pauses to listen for oncoming travellers with their grape-laden donkeys. Through movement these activities transformed individuals and families into a community of travellers bound together by linked socio-economic and cultural aims, which in turn were embodied in the path and the care with which it was tended.

In the Akamas Survey Zone sleds or sledges carried timber over the North-South Inland Communication Route (Chapter 6.2.2) following previously made ruts while making new ruts. Movement deepened old ruts, reconfirming their form and function, while new ruts demonstrated the expanding importance of this method of transportation technology.

During the British Colonial period the Atsas River Bridge (TP004) and the bridge TP020, located between the village of Kato Koutraphas and Evrychou in the Mandres Survey Zone, (Chapter 5) symbolised British ingenuity, control and authority, while stone robbed from bridge parapets was a response to this authority. Expressions of both control and resistance relied upon movement as a medium of conveyance. Moving along the new road was a means of accepting the new rule while passing over bridges with stone-robbled parapets suggested that the British Colonial Government, though powerful, was not without its discontented subjects.

Rhythm emphasises the relationship between people, their medium of interaction and the landscape. Rhythm incorporates aspects of human physiology (see McArdle *et al.* 2000: 432-440), the speed of the vehicle and frequency of travel, while accepting the importance of sensory input such as sight, smell and sound to this rhythm. Any given route is involved in multiple rhythms as individuals interact with each other and their surroundings. People travelling the road between Kato Koutraphas and Evrychou by carriage experienced the road, and therefore the landscape, completely differently from individuals travelling by animal or foot. Road regulations, speed limits, socio-cultural and economic factors regulated interaction along the road.

Roads and paths accessed natural resources such as timber, quarry stone, minerals and village outfields throughout the survey zones. These routes both made resources accessible while their construction and use transformed the previously un-experienced landscape into a known, familiar and usable territory. In the Mandres Survey Zone (Chapter 5), where modern timber extraction is most

prevalent, paths and extraction roads exist side by side. Road builders searching for accessible forest resources looked to paths used for forest extraction during previous periods because they suggested an established infrastructure and a known landscape.

Although roads and paths act as routes into unknown territories, they themselves are focal points in the landscape where human experience and interaction congeals. *Dhromos tou Appis* and *Strada tou Appis* are the most prominent examples of landscapes of interaction preserved in traditions and memories. The experience of moving along major routes of communication was incorporated into the daily experience of villagers. For example, iron donkey shoes made sparks as hooves hit the metallised surface of the British Colonial road between Kato Koutraphas and Kato Koutraphas *Mandres*. These sparks were visible to villagers like Kostas Benaki who lived in Kato Koutraphas *Mandres*. He associates these stories of the donkey shoes with memories of hot summers when grain was transported from the threshing floor to the mills in Evychou (Kostas Benaki interviewed by Given 2001).

Such visual cues and reminders sent multiple messages about relationships to communication and the landscape. Villagers like Panayiotis Alexandrou Loppas and Christostomos Georgiou can proudly point to routes used to travel to fields, into the mountains and to school (interviewed by Hadjianastassi 2003, 2004). These were all important aspects of the landscape formed through engaging in the memory of travelling along roads and paths (Ingold 2000: 189). The various actions and activities that took place along these paths transformed them into meaningful places. This landscape was filled with experiences (sounds, smells and feelings) that were negotiated through the medium of roads and paths.

7.4 Power relationships

Power relationships are played out through landscapes where daily activities are used to manipulate space and negotiate power (Foucault 1994: 361). Roads and

paths are entwined in social, economic and cultural relations and as a result they are effective avenues for manipulating and confronting power relationships. Colonisation serves to establish asymmetrical power relations by changing the basic structure of society (van Dommelen 1998a: 16). The colonial encounter establishes infrastructure and administration as an initial approach to control the population. Road building was a visible way of controlling newly acquired territory employed in Cyprus by both the Romans and British (*cf.* Mitchell 1999: 17). Building new roads and paths or altering old roads and paths enabled colonial forces to control the population, their interaction and communication while symbolising their power and control.

In Italy major road building projects completed during the fourth through second centuries BC were essential to the development and control of the Roman Empire (Laurence 1999: 11). Roads like the *Via Appia* in Italy demonstrated Roman power while confirming its leadership and domination to allied people (Laurence 1999: 13). In the Eastern Roman Empire, road-building projects focussed mainly on building highways connecting the frontier to hinterland and to the rest of Europe (Mitchell 1993: 124). Paved roads and forts were part of frontier defences established by the emperor Vespasian that stretched from the Black sea to the Upper Euphrates, and from the Taurus mountain region to Syria and the Arabian Desert.

Power relations in Roman period Cyprus are difficult to assess because of its unusual position within the Empire. Unlike other parts of the Empire, where veteran soldiers were given land in areas under the control of Rome as payment for past military service whilst serving to maintain security and enforce control, *coloniae* were never established in Cyprus (Campbell 1996: 80-81; Mitford 1980: 1296). The near absence of paved roads and limited number of milestones recovered suggest that in Cyprus the majority of roads were not *viae publicae*, but instead were private field roads (*viae privatae*) or minor village roads (*viae vicinales*) (Bekker-Nielsen 2004: 83-85). This unique political position suggests

that colonization on the island took on a different form from that in other provinces of the Empire.

Instead of colonization through the transfer of a large foreign population, Roman administration of Cyprus relied more heavily upon imposing control through establishing an infrastructure focussed around communication routes. The main highway around the island was built by the end of the Hellenistic period. Milestones listing distances between major cities provide evidence that in the mid-second century AD this route was expanded and renovated. By the mid-fourth century AD Roman communication routes on the island had developed to include smaller minor routes in addition to the connections between major cities as shown in the *Tabula Peutingeriana* (Bekker-Nielsen 2004: 112). As discussed briefly in Chapter 6, milestones marking the *viae publicae*, or main roads, were written in both Greek and Latin. As markers for territorial boundaries between cities along the circular communication route, milestones were visible displays of Roman power and ownership (Mitford 1980: 1337-8). The construction and maintenance of this system of roads required provincial and/or city intervention and coercion (Bekker-Nielsen 2004: 86). Not only was the construction and maintenance of these roads imposed on the local population by a foreign power, but milestones commemorated that very imposition. Milestones divided and ordered space and interaction by marking out boundaries between city territories.

The takeover by the British in 1878 marks one of the most recent, best-documented, and most securely dated periods of Cyprus' colonisation (Chapter 5). As discussed in Chapter 1, the British colonisation of the island was motivated by political and economic concerns. Cyprus was taken primarily for its strategic geographical position, while developing its resources and government offered the chance to make it a model British colony (Georghallides 1979: 7). The mixture of economic concerns and paternalism is found throughout the documentation from this period.

The construction of roads was part of the larger infrastructure put into place during the initial phases of colonisation. British officials viewed road building as essential to the development of the Cypriot economy, while building communication routes as quickly as possible to facilitate the swift change over from the old 'despotic' Ottoman regime where the standard of living was low, to what was seen as being more productive and efficient British rule (Angelides 1996: 209). Charles Vincent Bellamy, director of public works in 1898, was determined to construct a system of roads to bring order to the landscape and its population. His attitude toward the colony and its people is representative of many other government officials working in Cyprus at this time:

The existence of means of communication being essential to the extension of civilization and to the settlement, pacification, and subsequent administration of any country, one of the first acts of the Government of a new Colony must necessarily be the inauguration of a system of roads (Bellamy 1903: 3).

H.H. Kitchener believed, like many of the British Colonial officials, that British style roads and population transfer were necessary to civilise the Cypriot people and develop the island.

Roads are a great want in the development of the island. The natives have no desire to save time, - they follow the same narrow rugged tracks up and down rocks that their fathers followed before them, and if Government undertook to make roads for them, they would soon be again destroyed; but this would change if a few Englishmen settled in the country...the natives would soon make roads where they were needed, and the example of activity would speedily infuse energy into the sleepy inhabitants when they saw the advantages of it before them. (Kitchener Notes from Cyprus 1879: 151)

As illustrated in the above passage, stereotypes about the orient flourished during the initial period of British contact where it was necessary to maintain the distinction and knowledge necessary to colonise, teach and improve the sleepy and energy-deficient 'Other' (Bhabha 1986: 154; Foucault 1994: 340; Said 1986: 215).

Establishing the new colony required instituting measures to divide and order the landscape and society so that it could be easily controlled and managed by the new government (Given 2002: 19-20). These measures included the topographical

survey of the island by H.H. Kitchener in 1879, the mandatory registration of land and subsequent island wide cadastral survey between 1909 and 1929, the delimitation of the forest under the Forest Delimitation Law of 1881 and the construction of a system of roads (Given 2002: 8-13).

7.4.1 Redressing power: a British Colonial case study

Roads and paths are material representations of interaction and as a result their analysis offers the opportunity to redress colonial power relations. The changing road building policy illustrated in this case study provides a means of gaining insight into changing power relations in nineteenth and twentieth century Cyprus. This example demonstrates how routes of communication are entwined in power relations and the negotiation of power.

Similar to the stone robbed from parapets on bridges in the Mandres Survey Zone, differences in road and path morphology such as loops, ruts, bedrock cut areas, junctions and intersections may be the material remnants of acts of resistance rather than stylistic considerations. To identify differences in power within a society and the display of domination and resistance through material manifestations of interaction (roads and paths), one must date road construction and modification, as well as those individual events taking place on roads and paths. Dating to this precision requires excellent preservation of road and path surfaces, skilled excavation and advanced technological tools. In Northwest Costa Rica, radiometrically dated eruptions of the active Arenal Volcano have facilitated the detailed excavation and dating of paths. The excellent stratigraphy of volcanic ash deposits enables quantitative comparisons of traffic between different routes and paths (Sheets 2002 personal communication). Even though these researchers have not addressed power relations, their techniques offer the chance to address these topics more effectively.

British Colonial period Cyprus was marked by the ever-changing relationship between the colonial forces and the native population. The interdependent and interconnected relationship between these two seemingly discrete groups is

evident from analysis of the road building policy, as shown in archival records (*cf.* Hall 1996; van Dommelen 1998a).

The elaborate infrastructure and administrative hierarchy of the British Colonial government encouraged the detailed documentation of all aspects of the newly acquired land. Because road construction was one of the first projects where British Colonial society met Cypriot, they were areas of tension and potential conflict. Complaints, petitions and requests for roads made on behalf of villagers were translated, transcribed and included with relevant responses within Public Works Department files. Unravelling the entwined relationship between the British Colonial forces and Cypriot population is done first through the analysis of British Colonial attitudes towards pre-British communication routes, while the influence of native resistance to British road building policy forms the second part of this discussion.

Although there was a consistent opinion among British Colonial officials that roads were essential to colonization, there was no firm position on whether or not Cypriot communication routes should be replaced completely by British roads. The British road building policy often reflected paternalistic attitudes towards Cypriot people in general. In some cases pre-British paths were viewed by road officials with disdain, while in other cases these same paths were viewed as perfectly efficient means of communication. British Colonial official C.C. Hanson describes many attributes of mountain paths in a memo he sent to Government Engineer Kenyon in 1882 to try to persuade him to improve existing paths rather than constructing whole new road systems:

The mountain paths are in some parts of very easy gradients and of good width for a mule track and only require the loose stones taking off to make a good trotting road. In some parts they are wide enough to form with a very little labour a good narrow cart road. (SA1/15373).

In other cases Cypriot paths were condemned for their circuitous and difficult routes by the Public Works Department as they “mounted almost inaccessible hillsides, or wandered aimlessly from the most direct course” (Annual Report 1879: 201). Divisional engineer Hugh D. Nicolls describes an old track as “one of

truly Cypriot origin for the native has never any idea of going around an object unless that object is so steep or rough that it is physically impossible for his donkey or mule to surmount it” (SA1/1922/1899; Nicolls 1901: 69).

Varying opinions of Cypriot communication routes mirrored British opinions of the Cypriot people. In this situation the British did not fall smoothly into a single category of ‘colonisers’. Likewise, resistance to British domination took on a variety of forms. Attitudes toward British Colonial road building efforts changed dramatically between 1879-1900 and 1900-1920, and as a result Cypriot acts of resistance changed as well.

Road policy prior to 1900 focussed on the construction of access routes to increase security on the island. Road building was limited by the amount of money available to the British Colonial Government. Tribute paid to the Ottoman Empire came from Cyprus revenue. Due to a self-sufficiency clause imposed on all colonies, money had to come primarily from taxes imposed on the population of Cyprus. Prior to 1900 the tribute payment was 50% of revenue. The amount of money available for establishing Cyprus’ infrastructure was limited until 1900 when this amount reduced to 35% (Angelides 1996: 210). Thus, in the earliest period only essential roads were constructed. The increased supply of funds in the post-1900 period prompted the often haphazard construction of roads throughout the island, especially in economically viable areas.

The British Colonial Government’s attempt to control interaction through the construction of roads was met with resistance. Resistance had a dramatic influence on road building policy and relationships between the native Cypriots and the British Colonial government officials. Prior to 1900 acts of resistance were part of everyday life (*cf.* Scott 1985: 29). These early methods of resisting British control included: refusals to assist in the construction of roads (SA1/15259), sabotage of road surfaces through directing water across road surfaces (SA1/15243), piling dirt on roads (SA1/15322), ploughing roads (SA1/15346), pilfering stone from bridges (SA1/15265), and drawing on the

stereotypes of the natives as lazy and stupid (Royal Engineers Journal). It was during this early period of British occupation that most resistance took place with its peak between 1880 and 1882.

The degree of control that villagers had over the construction of major roads, especially the Nicosia to Troodos road, should not be underestimated. Obtaining local labour was key to the successful development of communication routes on the island. The British relied on local labour to build the infrastructure of colonization. Villagers used this position of power to increase wages and improve their work conditions. In many cases road building revolved around harvesting schedules. In the case of the Nicosia to Troodos road, labourers demanded higher wages to work through the harvest season. Similarly they demanded another pay increase in August when “work rose higher up the mountain and the nights in consequence became colder the men again began to complain and to demand higher wages” (SA1/1922/1899).

The reaction to road building changed by 1900. Villagers, seeing some of the benefits of having their villages connected to major communication routes and markets, bombarded District Engineers with petitions for new roads and/or the renovation of old roads. They drew upon the knowledge produced and language used by the British to justify road construction to these government officials (SA1/134/1902; SA1/885/1913). An excellent example of this language comes from a petition from the villagers of Pharmakas for a carriage road to connect them to Klirou and Nicosia. They argued that the

road is an artery which will bring to our village improvement, development and wealth. Our beautiful climate, our cold and pure water will attract many visitors and strangers for the summer...Our families will learn from the strangers several profitable works unknown to them, as well as they will be taught to behave more becomingly. (SA1/134/1902)

In a similar, but later, petition the isolated village of Pedoulas requested a road connecting their village to the Solea valley and the railway terminus in the Kargotis Valley. They claimed that the visitors that already come to their village during the summer months “imparts an [outwardly Greek] intellectual and

progressive development to the new generation of our village, so much so that the youth of our village rivals, in gentleness of manners and god [*sic*] behaviour, the youths of the towns.” (SA1/885/1913). The villagers of the small, geographically remote and seemingly powerless villages of Pharmakas and Pedoulas gained power by using the same paternalistic language and stereotypes that the British used to subordinate them. The road building policy was at the centre of this resistance throughout the period.

Attitudes towards and reaction against the British Colonial administration of the island changed again following WWI when acts of defiance became more organized and overt (*cf.* Scott 1986). Between 1918 and 1955 resistance against the British took the form of uprisings, revolts and riots. The declining standards of living and the drought of the 1920s and 1930s pushed political tension between the British and the Cypriots to a new level. Conflict culminated in the 1931 riot and revolt when the Government House was burned and political parties and the legislative council were banned (Angelides 1996: 215). The height of direct resistance against British occupation of the island came with the enosis movement and the 1955 armed struggle against the British that resulted in Cyprus gaining its independence in 1960.

7.5 Cyprus: the journey's end

It is the embodied nature of roads and paths that make them active in the lives of individuals and their daily struggle for power, from everyday resistance pilfering stone from bridge parapets on the journey to and from fields, to the planned piling of garden soil on the road outside the Government House in Nicosia (SA1/15322). Returning to those issues raised at the start of this chapter, the form and location of roads and paths are inextricably linked to settlement and land use not because communication routes reflect these economic and social needs, but because settlement, resource use and interaction are embodied within the daily lives and activities of individuals. It is the interplay between human activity, expressions of

identity, power, resource extraction and settlement that is embodied within the technology of roads and paths.

In Cyprus this link between human experience and communication is manifest in three types of communication route. During the Roman and British Colonial periods large-scale resource extraction took place via roads and paths designed specifically for that purpose. In these cases resource procurement was the driving force behind interaction. The structural features and morphology of roads involved in this process include ruts formed through and for moving sledges, looping road segments for reducing slope, and bulldozing of gullies to increase access to forestry resources.

Long-distance communication routes are the second type of route found in Cyprus that were used monthly or seasonally to take individuals to weddings, *paniyiria* and markets. Constructed along stable, less obstructed ridgelines, these routes facilitated quick and efficient movement over long distances.

Between the Roman and British Colonial period the most common type of interaction in Cyprus involved the daily movement of people from village to village, and between villages and their outfields. This interaction by road and path resulted in the distribution of material remains of daily activities such as broken water jugs, halloumi jars, and donkey shoes. The most pronounced feature of this third type of communication route is their stylistic variation that includes: terracing, zigzagging, engineering elaborate bridges and dedicating fountains. The diversity of these routes is a result of their intricate involvement in social relationships and daily negotiations of power.

The diversity of communication routes found throughout Cyprus, whether in the high elevations of North Palekhori or the coastal plains of the Akamas, is undeniable. Interestingly, this diversity only emerged when the underlying consistent link between communication route form, movement, social relations and landscape was highlighted.

Communication routes are never static, but instead change as the individuals who construct, maintain and use them constantly redefine themselves and negotiate their position in the landscape. It is precisely this sensitivity that makes communication routes an excellent means for studying the socio-cultural dynamics of movement.

8 Contextualising Interaction: Moving Towards New Interpretations

Roads and paths are not just lines used to connect the dots of settlement scattered throughout the landscape. Communication routes are expressions derived from the special relationship that exists between humans, human action and their environment. Our perceptions of landscape are formed out of meanings strategically chosen because of their relevance to our lives. Whether or not we travel by car, foot or donkey, the formation and subsequent use of that route is tied within our vision and experience of the landscape – human experience, roads, paths and the landscape change together.

As a child I walked home from school using the same paths as my brother did. The path that cut through the forest below the house changed throughout the seasons: in the spring it was muddy, in the summer it was dry and hot and autumn it was deep with leaves. In the winter icicles clung to the rock cliffs above the path and a few times the snow was so deep in the winter that it was hard to walk. In the summer and autumn I clapped my hands or sung loudly to scare any bears away, stopped to look at fossils in the rock face or watch for deer. As I grew up I approached the path differently – when I did walk the path I did it in silence without singing or clapping, and when possible I caught rides home in my mother or brother's car until I learned how to drive myself. Today the path is overgrown and seldom used. The rungs on the ladder that I used to jump the barbed wire fence have now rotted away and the path seems far less steep than it used to be. The path, the forest and I changed together.

Many assume that roads and paths are mere reflections of economic and political activity. Such theories ignore the socially embedded nature of communication routes. Roads and paths cannot be separated from the social fabric in which they are woven. The form, route, and technology involved in communicating are as much about the values of individuals travelling to and from homes and fields as the overall economic purpose of the movement.

In many cases the importance of communication comes not from the message itself but how this meaning is entwined in the act of communicating. The gum hearts mentioned in Chapter 1 express more meaning than the trite heart symbol suggests. To me, the gum hearts are more than heart symbols – they are expressions of camaraderie, of people bound together by a common place and

common circumstances. Gum chewers waiting for the bus or taxi personalised their landscape and then commemorated it with strategically positioned gum hearts.

Whether travelling to agricultural fields by donkey, walking home from school, or waiting at a taxi stand, daily activities shape our landscape, identities and understanding of the world. The gum encrusted sidewalks, inscribed patches of wet cement proclaiming peace, and posters glued to lamp posts along university pedestrian ways all draw upon the same underlying principal – that roads and paths are not empty spaces but focal points for interaction where messages are communicated and power relations negotiated.

This central position of roads in our understanding of landscape is evident from their use as media in the negotiation of power. Road barriers are used to limit communication and reduce interaction either by cutting off routes completely or making travel along routes more difficult. For example, cars were burned at the entrance to the Western Sovereign Base Area, on the Akrotiri Peninsula, Cyprus in 2002 by Cypriots protesting the construction of a large size communications antenna. Peace protesters that paint peace symbols on the road outside the Naval Base at Faslane, Scotland, rely on the fact that roads are not only a means of interaction but are an effective way of communicating messages to a wide audience. Similarly when marches along major routes of communication occurred throughout the world in 2004 to protest against the war in Iraq, they aimed to transform interaction along major arterial routes by limiting communication by car and encouraging communication by foot. Dynamics of interaction were changed to create a community of protesters by limiting options and ways of travelling.

This study of communication routes comes at a time when scholars are transcending the boundaries of the perceived Mediterranean to journey further into connections between continents and islands (Horden and Purcell 2000). Perhaps we are journeying too far. The regional systematic study of communication routes in Cyprus enables one to explore new and diverse themes that have not been addressed through broader studies of Mediterranean-wide

communication. Approaches to regional survey continue to change in response to ever-more complex and perceptive ways of looking at past landscapes. Still, these surveys are limited by their one-dimensional view of past landscapes where past interaction is extrapolated from topographic maps, pottery scatters, slag cakes and foundation walls.

A social approach to regional archaeological survey is one that accepts that communication routes play an essential role in understanding the landscape and the social relationships that formed, and were formed by, that landscape (Knapp and Given 2003: 319-320). Roads and paths offer a way to look more deeply at the intricacies of human interaction through analysis of their form and location.

The study of communication routes is a social approach to landscape. The methods developed within this thesis provide survey projects with the basis through which to address interaction on a regional scale. They offer the chance to contextualise settlement patterns and land use through understanding wider patterns of communication. Communication route data may be effectively interpreted without additional material culture data. Thus the study of roads and paths is an effective means of understanding land use and interaction in areas where pottery and lithic materials are scarce.

One of the most exciting elements of this research is that it provides a view of all types of interaction from the day-to-day movement of individuals between village and their outfields, to the less frequent, long distance, and potentially island-wide movement of individuals like muleteers and craftspeople. It is my hope that the further analysis of such movement may lead to a greater understanding of the embodied nature of communication routes and the dynamics between movement, *habitus* and landscape. Power relationships are negotiated through the construction, maintenance and movement along communication routes. These elements therefore provide a starting point for deconstructing and reinterpreting past power relationships.

All routes of communication are entwined and embodied in a variety of experiences, social relations and expectations. Thus behind this clean paper, 12

point font and regulation margins is a web of social relations, negotiated meanings, worn out socks, peppermint tea bag stains, panel meetings and submission deadlines. This journey was woven from an ever-changing web of social relations beginning with my childhood spent tending roads and cutting thistles. These aspects played a role in the route I chose and the journey that I took.

Glossary

- animal tracks:** distinguished from both roads and paths by their narrowness (less than 50 cm wide), light compaction and vegetation change between the track surface and the surrounding environment
- arazi mefcoufe:*** *vaqf* dedicated land
- arazi memluke:*** privately owned or mulk land
- arazi metrouke:*** land for the construction of roads or pasture
- arazi mevat:*** *hali* or unoccupied land
- arazi mirie:*** state owned land
- batha:*** type of vegetation less than 1 metre high composed of spiny burnet, thyme and up to 10% pine
- beccaficoes:*** small pickled birds popular during the Venetian period
- bedrock cut** structural feature evident on the inside edge or upslope side of the road surface related to topographic constraints
- casal:*** Venetian estate
- chiftlik:*** large Ottoman period estates owned by the state
- communication route:**
overall course of movement through the landscape often composed of multiple roads and paths

contour line:	a line that joins points of equal elevation or altitude
CPSP:	Canadian Palaepaphos Survey Project
<i>dhoukani:</i>	blades of chipped stone used for the threshing of grain
foot paths:	(also called paths) vary in width, distinguished mainly by their surface compaction and characteristic rounded outer edge
forest:	greater than 50% canopy cover where pine is dominant
garigue:	1-4 metres high vegetation composed of broom, mock olive and Christ's thorn
<i>hali</i> land:	abandoned or unproductive land
intersections:	where roads and/or paths cross.
junctions:	where movement is merged or split.
<i>kazas:</i>	Ottoman period districts
<i>koumna/kourellos:</i>	common pottery jar and storage pot
<i>lefteri/francomati:</i>	<i>parici</i> freed through payment or by earning the goodwill of the lord
loops:	roads or paths that split then come together again often related to manoeuvring around obstacles
<i>mandra/mandres:</i>	goat fold

maquis:	vegetation 1-4 metres high associated with low pine/oak or juniper/pistacio forest
Mejelle:	mid-nineteenth century Ottoman Civil Code
metochi:	seasonal settlement or monastic dependency
mukhtar/mukhtari:	Ottoman period headman
nahiehs:	Ottoman period sub-districts
open forest:	10-50% canopy cover where pine is dominant.
Όρμος:	natural or artificial harbour with a circular or ring-like shape
paniyiria:	church fairs
parici:	serfs
perperarii:	<i>parici</i> who were freed through purchase
pitharia:	large storage jars
POSI:	A Place of Special Interest located in close association with a Road Unit
reaya chiftliks:	farms where peasants or sharecroppers leased a unit of land or 'cift' to farm
retaining wall:	wall made of brick or stone constructed to retaining a bank of sediment
ridge:	long narrow mountain top

- roads:** vary in width with distinctive structural evidence for construction technique and the obvious difference in vegetation between the road surface and the surrounding landscape
- RU:** A Road Unit or segment of road or path defined by its structural features and morphology
- ruts:** linear indentations formed for and through movement across a bedrock surface
- saddle:** the lowest part of a ridge that often rises to a summit at either end
- SCSP:** Sydney Cyprus Survey Project
- sipahi:*** a representative of the Ottoman state who both enforced laws and rented land
- spur:** a ridgeline that runs downhill and often is located between drainages
- TAESP:** Troodos Archaeological Survey Project
- Tabula Peutingeriana:***
Medieval copy of Roman road itinerary, the original is suspected to date to fourth century
- TU:** arbitrary 100 metre units following along northings or eastings defined by the UTM grid used to locate roads, paths and associated material culture

tending:	practices related to care and maintenance of communication routes
terrace:	artificially formed flat areas on steep slopes created for cultivation
UTM:	Universal Transverse Mercator grid
<i>viae privatae:</i>	private road
<i>viae publicae:</i>	public road built on public property
<i>viae vicinales:</i>	village roads

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