"THE PROBLEM OF ARCHAEOLOGICAL SITE PROTECTION AND MANAGEMENT IN THE LAKE NAKURU BASIN, KENYA"

BY

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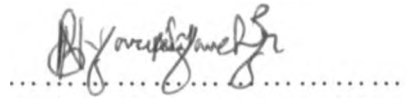
DECLARATION

This thesis is my original work and has not been presented for the award of a degree in any other university.



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This thesis has been submitted for examination with our approval as university supervisors

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DEDICATION

Dedicated to my loving and caring mum Mary Kemunto plus other family members.

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ABSTRACT

This research seeks to address the problem of archaeological site and data protection, management and destruction in the Lake Nakuru basin, Kenya. The research was done on selected sites including Kariandusi, Hyrax Hill, Lanet and Njoro River Cave. The methods of data collection include observation and recording, interviewing, photography and use of secondary materials in form of books and publications on the sites. The results of the research show that while the government has put up legislative provisions for the protection of archaeological sites and their contents, many of them are threatened with destruction. The research also indicates that archaeological public education is underdeveloped. Natural factors, for example excessive temperatures and soil erosion lead to destruction of some artifacts and features. Roots of plants and burrowing animals contribute a lot in the wearing away of features and general destruction of the landscape. This are the main factors contributing to archaeological site destruction. Recommendations on how archaeological resources can be better protected have been well documented. As a result of this research, it is recommended that stringent measures should be put in place by the responsible authorities towards better protection of archaeological resources not only in the Lake Nakuru basin but also in Kenya as a whole.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This research addresses the problem of archaeological site protection and management in the Lake Nakuru basin. The study is based on selected sites namely: Hyrax Hill, Kariandusi, Lanet and Njoro River Cave (see figure 1.2). The study into the problem of archaeological site protection and management falls under Cultural Resource Management (CRM) which Fagan (1988) defines as the conservation and management of archaeological sites and their resources as a means of protecting the past.

Many development projects have had profound effects on archaeological sites. Agricultural activities, industrialisation, mining and quarrying, urbanisation, among others are some of the factors that have had adverse effects on archaeological sites. Natural factors for example, weather patterns also contribute to the deterioration of archaeological resources. Another major problem is that there is a conflict of interest between the National Museums of Kenya and owners of lands where archaeological sites lie. Knudson (1986) notes that the problem is with the ownership of archaeological sites. The issue is who has the right of ownership.

1.1 Statement of the problem

Archaeological sites are an important aspect of human society worth managing for posterity. Despite this, there has been no proper management of the sites in Kenya. Some of the sites have been destroyed thus robbing the country of an important cultural heritage.

In many researches that have been done, archaeologists conduct their work purely on an intellectual plane distancing themselves from local people who may provide useful information regarding the sites. Awareness of archaeological work among rural communities has so far remained elusive in spite of their continued interaction with researchers in the same field. This seems to imply that not only have archaeologists failed to inform train/ or educate local people but also have not made themselves and their projects known to those who live in the research areas. This is true with regard to archaeological field projects where the interaction between the researcher and the local people is a methodological necessity.

1.2 Objectives of the research

One general objective of the research is to establish the role of the Kenyan government and public in the protection and management of archaeological sites. More specifically, the study intends:

1). To examine the role of the government in the protection and management of archaeological sites within the Lake Nakuru basin, Kenya.

2). To show the human and environmental factors responsible for site destruction.

3). To establish the level of archaeological public education among rural communities.

1.3 Research hypotheses

Archaeological sites are destroyed through human and environmental forces. In view of this, the research is based on the following hypotheses:

(1) The Government has not adequately enlightened the public on the necessity to protect archaeological resources.

(2) Human activities and environmental factors contribute to the destruction of archaeological sites.

1.4 Definition of operative terms

Archaeological site: A place with evidence of prehistoric human occupation or activity. Deetz (1967), argues that sites are normally identified by the presence of artefacts

Archaeological data: Materials remains recognised by archaeologists as evidence of past human behaviour. According to Ammerman, (1981), the data falls into four main classes including artefacts, features, structures and food remains.

Archaeological/ Cultural Resource: That which is taken as an asset upon which some benefit for example tourism is derived (Knudson, 1986). In this study it is used to refer to the archaeological sites and their resources under investigation in the Lake Nakuru basin.

Archaeological culture: According to White (1949:9) culture is a set of designs for living that help to mould our response to different situations. He further defines a culture in archaeology as an arbitrary unit meaning similar assemblages of artefacts found at several sites, defined in a precise context of time and space. (King, 1971:9) considers an archaeological culture to be an assemblage representing the surviving remains of an extinct culture.

Assemblage: According to Dunnel (1971:83), an assemblage refers to a collection of artefacts, for example, hunting weapons, baskets, digging sticks, traces of wind breaks and stones found in a contemporary association reflecting shared activities of a given community.

Authority: Means the National Museums Board and any other person or body of persons who may be authorized by the Minister of Home Affairs and National Heritage to perform the duties of an authority under this Act (Government of Kenya, 1984).

Cultural heritage: Features belonging to a culture of a particular society, such as traditions, languages or buildings which still exist from the past and which have a historical importance (Evans, 1978: 25).

Conservation: Planned management of existing, identified and valued resources to prevent exploitation, decay, or destruction due to neglect, ignorance or indifference. It also means all processes of looking after a place so as to retain its cultural significance. (Collins, 1991:210)

Exploration license: Means permit issued by the Minister to carry out research on a particular site. It does not include excavation (Government of Kenya, 1984).

National Museums Board: Means the National Museums Board of Governors established under the National Museums Act (Government of Kenya, 1984).

Private land: Means land privately owned and land that is the subject of lease, grant or license from the Government (Government of Kenya, 1984).

Site Management: Refers to the control of the affairs or interests of sites investigated. It includes maintenance and may according to circumstances include preservation, restoration, reconstruction and adaptation and will be commonly a combination of more than one of those (Charter, 1981).

1.5 Literature review

The problem under investigation can be understood within the broad spectrum of Cultural Resources Management. The term CRM first arose in the U.S.A in the 1970s with the introduction of legislation that required assessment and mitigation of cultural sites as part of environmental impact assessment on state and federal land. C.R.M. was essentially 'project driven' as assessments were required only when development projects were planned and rescue work was necessary to sample archaeological sites before they were impacted (Deacon, 1993).

As far as the concept of management of cultural resources is concerned, the term has broadened to include the survey, documentation, protection and management of sites even when they are not under threat of development. Such recording programmes provide a permanent database that can be used as a management tool. C.R.M. therefore encompasses not only the legislation that protects sites, but also the public and private initiatives that are needed to identify, investigate and manage them (Coetzee, 1991).

In the mid-1990s, an even broader perspective developed. This involved the merging of all aspects of environmental management. In New Zealand and Norway it was manifested in Environmental Act which protected every aspect from cultural sites to fishing rights and industrial pollution. In the U.S.A., "ecosystem management" has become the "new mantra" (Sweeney, 1995) and focuses on the "entire web species," including people, that comprises an ecosystem and on the larger problems and trends that affect their long-term health and survival (Hall and Lillie, 1993).

The process followed in archaeological assessment programmes in South Africa normally involves several stages. A survey should identify the sites and their importance. A second

phase would 'rescue' or mitigate the site through excavation or collection of artefacts. Where buildings are involved, architectural features would be recorded prior to renovation. A possible third phase would involve changing the plans for the development to avoid impacting one or more archaeological sites (Kaplan, 1993). In spite of that, archaeological collections and resources are in a crisis. This crisis includes poor collections management, lack of restoration and conservation services and lack of statutes that adequately protect archaeological sites and other cultural heritage from developers (Kibunjia, 1994).

In South Africa, archaeological resources do not always enjoy adequate protection partly because they are perceived as being of less value than buildings and other structures of the colonial era (Deacon, 1992). Hall (1995) maintains that lack of success in management of resources is due to inadequacy of the South African National Monuments Act legislation and also lack of integration of heritage conservation measures in town and regional planning systems.

In Kenya, the National Monuments and Antiquities Act of 1983 clearly stipulates the legal machinery on the protection of archaeological sites. However, the Act does not adequately protect sites from encroachment. Implementation of the protective clauses is not spelt out in the act. Examples are the Hyrax Hill and Kariandusi sites that have been adversely affected by industrialisation, agricultural activities and urbanisation. At the Hyrax Hill, for example, part of the site to the far Eastern side was acquired by the Nakuru Blankets Industry for the construction of water tanks. At Kariandusi site, dust and smoke from the adjacent diatomite quarry industry has caused rusting of structures sheltering artefacts. Lanet and Njoro River Cave sites are not protected thereby exposing them to effects of human beings and animal. According to Wandibba (1996), there is need to review the 1983

legislation to suit today's conservation needs. The Act appears to be inadequate in the face of continued acceleration of destruction of sites due to increased construction work

Agbaje (1990), contends that problems of archaeological resource management in Nigeria includes lack of appropriate legislation, inadequate information (inventory), lack of proper education on the relevance of this type of heritage, financial constraints, shortage of archaeologists and also lack of infrastructure amongst others. Andah (1979) notes that most ventures by the government in Nigeria are destructive of archaeological evidence, especially when and where it envisages digging or excavation in bid to construct something new. He suggested the enactment of appropriate laws to compel land developers to undertake environmental impact assessments for all major projects and also find salvage work. In Kenya, especially the Kariandusi site, the haphazard quarrying has led to loss of archaeological materials.

McGmsey (1972), holds that antiquities legislation cannot be the sole approach to preserving a states archaeological heritage. Education rather than legislation is the real answer to the protection and preservation of archaeological resources. It is only when the public is well educated on the subject of cultural resources that legislative provisions can be effective. In Kenya, public education on archaeology is poorly developed. The most important and urgent issue in archaeology today is the preservation of the world's archaeological heritage. There is a general consensus that archaeological sites constitute a unique class of non-renewable resources that is finite in number (Thorne, 1991).

True preservation means more than conserving the individual monument. It means the preservation of landscape around the building, the preservation of clusters of buildings monuments and sites (Wandibba, 1996). It also means the protection of artefacts that have

1.8.1 Data collection

Observation and recording. This has been based on the general condition of the sites and their contents. It also includes looking at all development projects taking place in or near the sites under investigation. The aim is to show the effects of human activities like agriculture, industrialization, urbanization and settlement patterns near the sites. The security of the sites has also been looked into paying attention to how they are safeguarded against trespassers. Observation is done together with recording of surface materials (artifacts) and features comparing that with what was initially discovered and recorded. This is to establish the type of artifacts in the sites articulating that with ones found earlier. It also includes measuring the dimensions of archaeological features. The size of the individual sites in terms of coverage has been determined associating that with initial dimensions. This has been achieved through the study of museum records.

Investigations on the environmental factors affecting the preservation of artifacts and features have also been carried out. The nature of protective enclosures in relation to environmental factors like temperature and rainfall is looked into. The effect of high temperatures on stone artifacts is compared with bone artifacts. The result of excessive heat on these artifacts leads to the expansion of the outer layers hence causing weathering by exfoliation or granular disintegration (Robinson, 1977).

Use of secondary data. This has been in the form of books, publications and other museum records analyzing previous researches on the areas. Protective laws enacted in the colonial and the post – colonial period is also reviewed. The Antiquities and Monuments Act of 1983 is analyzed. Analysis of visitors' books to the sites (those preserved) has been taken into consideration to ascertain the frequency of visits and the rate of charging over time. The results are presented in form of graphs.

lines are needed now, not only to answer research questions central to East African history but also to generate public appreciation of the importance of these sites within the regional heritage.

The Lanet site in particular, because of its size and the remarkable preservation of some of its features, offers itself for further investigation on the sirikwa way of life as it was developed some five centuries ago. Such a project could proceed from the plan of the central area drawn by Merrick Posnansky in 1957 and the contoured survey produced in 1995 by a joint BIEA/ University of Helinski team led by Ari Siiriainen.

More than that, these sites and the research undertaken over several decades have demonstrated their importance for environmental and climatic history throughout the Holocene period. In fact, the archaeological and geomorphologic sequence of the Central Rift Valley and the Lake Nakuru- Elmenteita basin stretch much back into the Pleistocene period with both Middle and Early Stone Age sites providing essential environmental as well as cultural pointers (Sutton, 1998). Although the details of the sequence and climatic changes, which Louis Leakey established in the 1920s have since been radically revised, Nakuru remains a good base for CRM studies.

Despite the impressive environmental setting of the sites under study, destruction is apparent. For example, increased urbanisation and need for human settlement has affected archaeological features. Since sites like Lanet are open, their integrity and conservation require vigilance combined with suitable management. The research done in the sites exposed to details the archaeological potential of the sites but failed to come up with comprehensive study on the threats of destruction. They did not show the extent to which the sites have been destroyed, the reasons for that and how to contain the situation. Early

researchers like Mary Leakey were basically preoccupied with the archaeological findings in the sites. They were not concerned with the protection of the sites for future studies. An example is the Njoro river Cave site that was abandoned after excavation.

In summary therefore, it is important to note that the problem of site in this part of the Rift Valley has not been fully assessed. The major impediment to this is that there is inadequate literature on the archaeology of the Lake Nakuru basin specifically on issues relating to CRM. At the same time there is little information on how the public can be educated to synthesise and realise the benefit of protecting an historical culture. Lastly there is no clearly stipulated legislative Act on how archaeological sites located on private land can be acquired and protected. An example here is the Njoro River Cave site.

1.7 Conceptual framework

This research is based on the theory that " an advancement in modernisation in the form of agriculture, mining, industrialisation, roads, railways, dams, power lines, urbanisation etc. leads to the destruction of the environment (Voigt, 1977). Destruction of the environment takes place especially where impact assessments are not carried out (Van der Zel, 1989). The environment also comprises of cultural materials that reflect important historical information. As these aspects of modernisation are being effected, cultural materials get destroyed especially when their value is not taken into consideration (Yeld, 1993).

A number of agents can be identified that, in most cases result in either damage, alteration, or complete loss of archaeological sites and data when the agent and the resource come into conflict. For example, a combination of effects of erosion and land reclamation undertakings may create a process in which archaeological materials are destroyed. Sources

of potential destruction of archaeological sites come from virtually every conceivable source in the environmental setting. The two major categories include those of natural origin and those associated with human activities on the landscape. The human agents can further be sub-divided into incidental and intentional actions.

Natural processes and events that affect archaeological sites are many and range from the effects of earthworm and crayfish soil mixing to devastating consequences of volcanic and earthquake events. In between these extremes, activities of various plants and animals and erosive actions of wind, water and temperature take a great toll on cultural materials leading to loss of items in the record

Human caused actions that have harmful effects on archaeological sites and data continue to increase in number and magnitude as lands are developed and exploited and pressures of population expansion increase (Collins, 1991). Incidental actions in site destruction are those activities associated with the many forms of land development and resource exploitation that take place in the landscape In other words the destruction of archaeological sites and data is not the primary motive behind such actions, but the end result is that another part of the archaeological record disappears from the landscape. These activities may be generally categorised as (1) development (2) agriculture and land clearing (3) water projects. Intentional actions are guided by motives that are difficult to control or prevent. The worst of these actions, those related to vandalism are particularly damaging since they lead to destruction without any return of scientific information. Amongst them, is theft of artifacts from structures, malicious breaking of artifacts, knocking structures over, climbing or walking on resources and many others. In general therefore this research will investigate these factors.

Illustrative model on archaeological site and data destruction

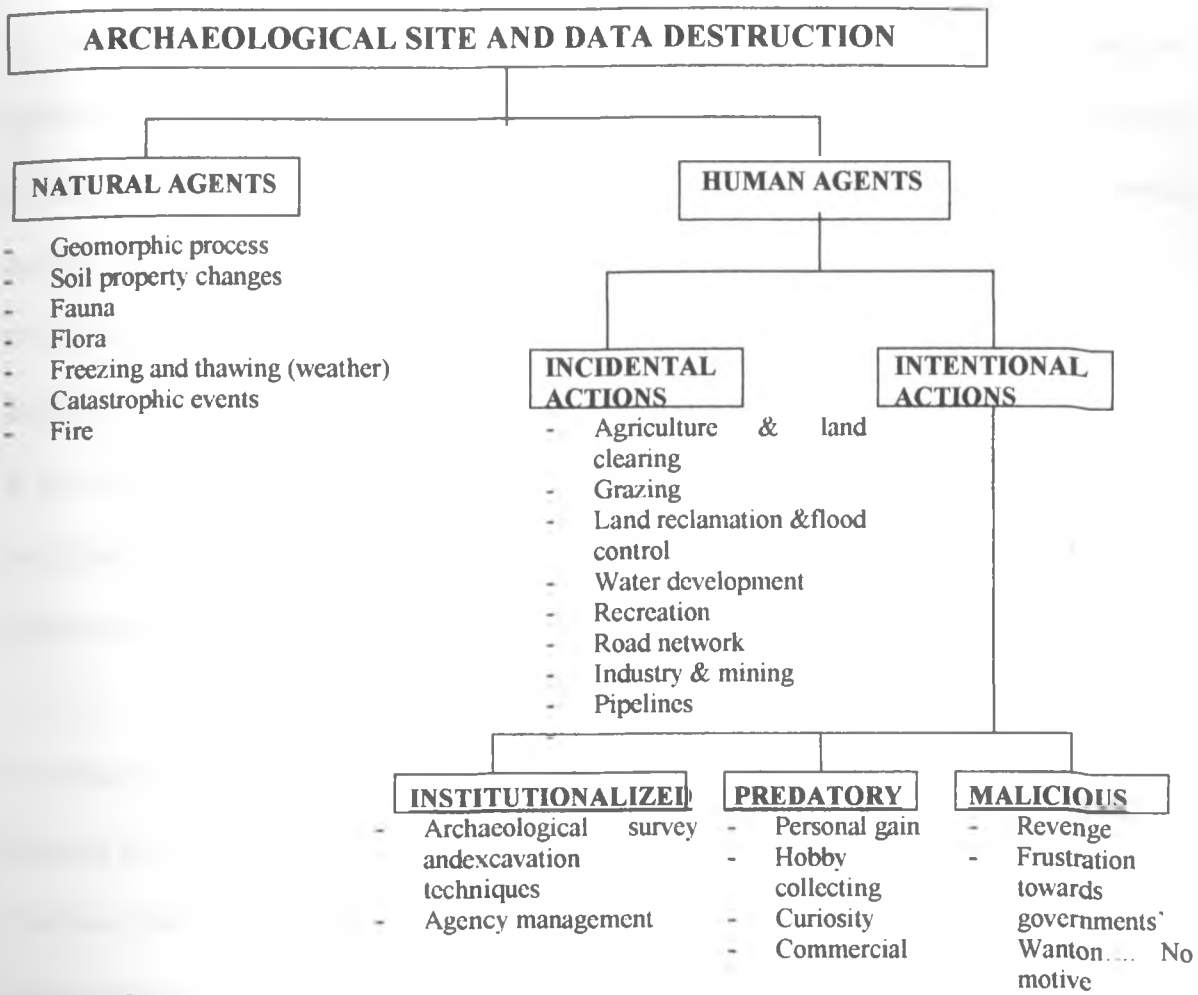

Figure 1.0 Agents and modes of resource destruction
Source: Schiffer, (1998: 75).

1.8 Methodology

The objective here explains the methods used in obtaining data from the field as well as presentation. In this research, the methods of data collection do not differ significantly across the sites. The methods used include observation, recording, interviews, photography and use of secondary data.

1.8.1 Data collection

Observation and recording. This has been based on the general condition of the sites and their contents. It also includes looking at all development projects taking place in or near the sites under investigation. The aim is to show the effects of human activities like agriculture, industrialization, urbanization and settlement patterns near the sites. The security of the sites has also been looked into paying attention to how they are safeguarded against trespassers. Observation is done together with recording of surface materials (artifacts) and features comparing that with what was initially discovered and recorded. This is to establish the type of artifacts in the sites articulating that with ones found earlier. It also includes measuring the dimensions of archaeological features. The size of the individual sites in terms of coverage has been determined associating that with initial dimensions. This has been achieved through the study of museum records.

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Use of secondary data. This has been in the form of books, publications and other museum records analyzing previous researches on the areas. Protective laws enacted in the colonial and the post – colonial period is also reviewed. The Antiquities and Monuments Act of 1983 is analyzed. Analysis of visitors' books to the sites (those preserved) has been taken into consideration to ascertain the frequency of visits and the rate of charging over time. The results are presented in form of graphs.

Interviews. A section of people from the local community and museum staff have been interviewed as a means of acquiring data. People from the local community included those living in or near the sites or visitors to the sites. The museum staff consists of those charged with the responsibility of overseeing the events at the sites. Questioners with alternatives were prepared and filled with the assistance of research assistants. The minimum number of people targeted from each site was 33 in the case of locals. This meant that at least 132 people were interviewed in total. In addition, four museum officials were interviewed, two from Kariandusi and the other two from Hyrax Hill. These are mainly curators and guides. The people interviewed from the local community include students, farmers, herdsmen, tourists (both local and foreign) and commercial land developers among others. The results have been presented in form of percentages.

Photography. This is an important component of data collection. It is done together with observation and recording. Photographs have been taken at some of the sites under study. Through photography, current states of the sites are captured. The deteriorating nature of the structures, the pulling down of fences, the rapid rise in modernization and human settlements is well illustrated.

Data presentation is in the form of tables and graphs. Generally, study of what currently is at the sites has been compared with what was recorded initially.

1.9 Conclusion

The foregoing chapter has presented introductory information on the problem under study. Information relating to the sites where the research has been carried out clearly explained. Background literature to the problem is given, looking also at archaeological site destruction in other countries relating it to the problem under investigation. Objectives of

CHAPTER TWO

SITES AND GEOGRAPHICAL SETTINGS

2.0 Introduction

The aim of this chapter is to provide the detailed description and nature of the sites under investigation. Information pertaining to each site is presented within the bounds of the research objectives. A comparative analysis of the sites is carried out in terms of geographical settings, history and archaeological materials. The uniqueness of each particular site is studied drawing attention to their present conditions.

2.1 Kariandusi Site GsJi 1

2.1.1 Geographical setting and history of the site

Kariandusi prehistoric site lies within the Nakuru - Elementaita basin. It lies on the eastern side of the Gregory Rift valley about 2 km east of Lake Elementaita at 0^0 28' S., and 36^0 17' E. The site is dated to between 0.9 – 1.0 m.y.a and is situated 1800m above sea level, lying about 75m above the present day level of Lake Elementeita (Nilson, 1940; Washbourn 1967; Bishop 1971; Butzer *et al.* 1972; Nyamweru 1980). Impressive scarps of the Rift wall rise less than 1 km behind the sites, continuing to the Bahati Escarpment to the North, and the Gilgil Escarpment further South. The scarps behind rise to 2250m above sea level and are 3 km away from the sites. Near this point the Kariandusi River (now dry) dissects the scarps which has a relatively short course, fed partly by waters from the Coles hot springs, only 2 km from the sites (Nilson, 1940; also see figure 1.3).

the research have been clearly outlined. Additionally, a conceptual model is given showing the agents of archaeological site and data destruction (see figure 1.0). The methods of data collection are also explained. The methods used in collecting data in this research do not differ significantly across the sites. The main methods used include observation and recording, photography and interviewing. Use of library research and earlier publications to the sites has been helpful in this research.

The deposits containing Acheulian material are best exposed in a site gorge on the left bank of the Kariandusi River, which reaches within about 150m of the old Nairobi – Nakuru main road.

Kariandusi itself was one of the first Palaeolithic sites to be discovered in East Africa (Leakey, 1931). Although it was investigated in 1973 and 1974 no primary context occurrences were found (Gowlett, 1980). Other than archaeological, Kariandusi is also known for its geological significance. The area has received special attention because of the commercial significance of the deposits (Washbourn, 1967). Various specialist reports have been made on these deposits, the best of which were done by McCall in 1967. According to McCall, the diatomites at Kariandusi were first reported by Hobley in 1909. The sediments were later described by Gregory in 1921. Solomon, a geologist working with Louis Leakey, provided a first general description of the sediments and shorelines of the Nakuru, Elmenteita basin Later on, their excavation yielded plenty of archaeological materials (Leakey, 1931).

2.1.2 Early archaeological investigation

Kariandusi site has yielded a considerable number of archaeological materials. Archaeological investigations were carried out and a series of hand axes were described in *The stone Age Cultures of Kenya Colony* (Leakey, 1931). Leakey (1936), noted that a collection of over two thousand specimens excavated from an area barely $10m^2$ were discovered. As a result of this L.S.B Leakey, (1934) argued and believed that the Kariandusi River site was a factory site of the Acheulean period.

The early descriptions of the site are prefunctory by modern standards, but the artifacts were carefully described and illustrated. Work did not commence until shortly after the

Second World War, when new – excavations were carried out in the Acheulean site in preparation for the first Pan-African Congress of Prehistory, held at Nairobi in 1947 (L. S. B. Leakey and Cole 1952). In 1958, Kliendienst and G.H. Cole were given permission by the Leakeys to make a study of the artifacts from Kariandusi housed in the then Corydon Museum. Only a small proportion of the Kariandusi finds were studied (Kleindienst, 1961) and are compared with the results of more recent work by L.S.B Leakey. Further archaeological work was carried out in 1973/4 following the discovery of artifacts during the quarrying of diatomite in the area (Gowlett, 1979: 1980.)

The discovery of Palaeolithic artefacts in the sediments at Kariandusi allowed for the confirmation of their Pleistocene age. The area was considered ideal for working out a pluvial-interpluvial sequence, and the Nakuru-Elementeita basin became the type area for such sequences in East Africa.

Interpretation of the sites depends partly on evaluation of the relationship of the Kariandusi to the history of the Rift Valley itself. The sediments which have been named 'Kanjeran' are lacustrine in nature and well stratified consisting largely of diatomites and tuffs. The Kariandusi sediments have an appreciable dip to the west, which has been interpreted as suggesting that slight down warping of the Rift Valley floor continued after the deposition. This has been an important factor in considering the palaeogeography of the sites (Nyamweru, 1980).

2.2 Hyrax Hill Prehistoric Site GrJi 25

2.2.1 Geographical location and history of the Site

Hyrax Hill site though small, is prominent with the main Nairobi road skirting its southern end some 3 km East of the Nakuru town center. The Site lies 0° 17' S 36° 06' E and

consists of a narrow rock spur measuring 500m from North to South. It dates 2800 – 2000 years ago. It rises nearly 50m above the surrounding plain and commands good viewing of Menengai crater towering above it to the north-West and the saline edge of Lake Nakuru 4km to the South, 100m lower than the base of the Hill. Since Mary Leakey worked at this site, Nakuru has expanded and now almost engulfs the Hill. It is no longer the 'grassy plains,' as she described it, but small fields of maize. (Sutton, 1987: 2-5).

The Hill itself, though not regularly boasting of hyraxes in its crevices is preserved as a national monument having been under the care of the National Museums of Kenya since 1960's. The land where the site lies was the property of the late Mrs. A. Selfe who previously resided in the house currently serving as a site museum.

The summit of Hyrax Hill, at an altitude of some 1,900m above sea level affords a panoramic view of the 'central' stretch of the Rift Valley, including the escarpments to the east and west and the whole of Lake Nakuru basin. The edge of the lake itself or, rather, its soda flats, lies 4 km to the South (Sutton, 1998). It includes Lion Hill overlooking the East Side of the lake, to the mouth of the Njoro river. This river flows off the Mau into its north west corner and the extent of modern Nakuru from the boundary of the National Park near the lake to the slopes of Menengai caldera to the North (see also figure 1.4).

According to Washbourn (1967), there was much fluctuation in climate and lake levels in East Africa from 20,000 to 3000 years ago. She identifies two former Lake Nakuru shorelines, the highest being at 1942 m. when the Lake could have overflowed into the menengai caldera, at the same time submerging most of the Hyrax Hill leaving it as a small island. The second shoreline is the "Misonge shoreline" which stood at 1812 m. This time the water had receded from Hyrax Hill as the shoreline stands at about twenty five

minutes walk from the Pastoral Neolithic site in the southern direction (Abuje, 1977). All these changes took place before 3000 B.P. From three thousand years ago, the climatic conditions have remained stable. Thus, the changes in shoreline did not affect the Pastoral Neolithic or Pastoral Iron Age peoples.

Evidence of prehistoric habitation was first noted in 1926 when Dr. L.S.B. Leakey was excavating the Nakuru burial site. Later the prehistoric habitation was excavated in 1937-8 by M.D Leakey (Leakey, 1945). The Pastoral Neolithic site consists of a cemetery and occupation debris.

2.2.2 Archaeological research in the area.

Archaeological research at Hyrax Hill started with the pioneer work of Louis S. B Leakey in the 1920's (Sutton, 1998: 85). Leakey's avowed purpose was to demonstrate that East Africa had not been a backwater throughout past times as European archaeologists were then apt to assume.

Louis Leakey noticed archaeological remains on both sites of Hyrax Hill (Site I and Site II) in 1926 when he was excavating what he called the Nakuru Burial site. That site, which was later destroyed by quarrying lay at the side of the small hill (now topped with water tanks) that stand to the north east of Hyrax Hill itself. After investigating this cairn, Leakey did not proceed to excavate on Hyrax Hill; apparently he considered the remains there too recent for his main interests and he had plenty of other work in the region. In 1937 however, he returned to the Nakuru area with his wife Mary, and suggested an investigation of the Hyrax Hill.

Accordingly, Mary Leakey started with the rough stone enclosures on the east side of the Hill (calling this area site I). It is composed of enclosures and associated hut circles falling in the Iron Age and dating only about two hundred years old. This site's materials range from stone tools, pottery to fauna. Stone tool materials include obsidian implements like crescents, borers, obliquely trimmed points, backed blades, burins, scrapers, frayers, utilized flakes, waste flakes and cores. Pottery finds include potsherds representing 28 different vessels, 5 reconstructed and ovoid beakers. Fauna remains include animal bones and teeth, domesticated cattle, sheep, goats and wild animals (Leakey, 1945).

Having completed and fully investigated the excavations in site I, Mary Leakey returned the following year to another area with 'hump and hollow' features (calling this site II). She labeled it as a pre-Iron Age settlement belonging to a population akin to that of the early Nakuru Burial site.

The site consists of thirteen round hollows each with a mound close by. Following terminology then fashionable in British archaeology, Mary Leakey called the hollows '*pits*' on the assumption that they represented ancient 'pit dwellings' (Leakey, 1945). She regarded the associated mounds as 'middens' or rubbish dumps. The materials recovered from this section were also in form of stone pottery and fauna. Stone tools included 300 obsidian tools and waste flakes like microliths, scrapers, scraper fragments, and glass beads and shell beads. Pottery finds comprised of 1,300 potsherds belonging to gourd shaped vessels also decorated. Fauna included bones of sheep and oxen (Leakey, 1945).

On the plan of Hyrax Hill site II, those features that were excavated were marked *A, B, C* and so on. This lettering began with Mary Leakey's work here in 1938. She dug a trench through one of the features named mound A and also excavated the complete interiors of

hollows B. The measured cross-sections and contoured plans of these excavations published in Mary Leakeys report of 1945, demonstrate that the hollows were constructed in roughly circular form and enclosed by stout fences, for which the foundation trenches were very clear.

2.3 Lanet prehistoric Site GrJi 26

2.3.1 Geographical setting and history of the Site

Lanet site lies 7km to the East-South-East of Nakuru town. It lies at 10° 18' S, and 36° 07' E and 7.5km from the main Nairobi – Nakuru road and railway. It is situated at the north foot of Lion Hill, overlooking Lake Nakuru. It extends from the Nakuru National Park fence northwards to the railway. Immediately to the west of the site is a population area which has been built up gradually in the last thirty years (see figure 1.5). The site is dated to 1585+- 100 A.D. It is visible from the main Nairobi – Nakuru road and was popularly called by certain European settlers as "old Nakuru." It was also known from a privately taken photograph dating from before the 1939 – 45 war and now in possession of Dr. and Mrs. L.S.B. Leakey (Posnansky, 1967).

The site consists of an earthwork and a series of mounds forming a roughly oval enclosure of 670m in circumference covering 4.5 ha. (11 acres) of land in area aligned in a north-north-easterly direction. It is situated at the break of a slope of a low rise, which runs rapidly down on the west and southwest to the lake Nakuru basin. The mounds consist of the upcast of a shallow ditch 50m in width and 3.5 m in depth (Posnansky, 1957).

The site had over one hundred hollows that measured 12 to 18 m across which had been excavated on the western slope of the earthwork at times cutting into the actual mounds,

indicating that the earthwork was constructed before the hollows. Associated with some of the hollows were low mounds varying in size from 3 to 5 m in diameter (Sutton, 1998.)

Another section is that which consists of a hollow some 15m to the north of the enclosure named Hut A. The hollow which sloped down hill in a north easterly direction, was some 18m long by 16m in width. The central area supported a luxuriant growth of vegetation but changes have happened upon it as discussed later in the preceding chapters.

At the south end of the Lanet site, close to the Park fence, dump patches occur in some seasons at certain depressions. These suggest that they may once have been springs on this foot-slope of Lion Hill. If that were so five hundred years ago, the viability of a site like this for a Pastoral-Neolithic population would have been obviously enhanced.

2.3.2 Archaeological research in the area

The first feature to be excavated was the artwork. A trench approximately 50m in length was cut across the most prominent of the mounds forming the western bank of the earthwork at a point where the mound was more than 3m higher than the ditch. A series of ten staggered trenches were placed across the gap on the eastern flank of the mound. All the trenches were taken down and into the Natural "*rock*" which ran from a consolidated volcanic ash on the eastern (uphill) side through strongly dipping sands and pumice gravel on the southern side (Posnansky, 1967). The mound was excavated in 15cm spits down to what was at the time pressured to be the original ground surface and then through to the undisturbed natural deposits (Cole, 1963).

A small amount of pottery was found throughout the mound soil, presumably thrown in the construction of the soil mound, with a particularly large amount coming up from the lower

part of the make up of the bank which was the soil first excavated from the ditch (Posnansky, 1967). The burned ground surface was marked by an abundance of burnt material and hearths. The surface appeared as if numerous fires had been made on it and it was strewn with bones in a haphazard fashion, which suggested a butchering place and cooking area. Within the line of the ditch, to the immediately east of trench 1 a series of small packed out holes, 5-8 cm in diameter were found on the consolidated ash surface at which the excavators of the ditch had ceased work.

The hollow (Hut A.) was excavated using quadrant method and was found to contain 1.3m of loose, dark brown soil virtually stone-less infill. Below the in-fill, a discontinuous scatter of stones was found covering an area some 7 by 8m. Most of the stones were 10-20cm across and rested on a layer of black, stone-less, compacted soil some 10-20cm thick. On this layer there was a larger number of bones (Leakey, 1945).

A range of other materials were discovered from the site. Stone tools included obsidian tool cores, lunates, utilised waste flakes, burins, scrapers escailles, and iron hoe. Pottery finds included 400 earthenware sherds. Two complete pots were reconstructed, "Lanet ware". Fauna included 470 bone fragments of cattle sheep and goat. 275 bone fragments of Roan. Fragmented bones of gazelle and bird were each 1 (Abungu, 1984).

2.4 Njoro River Cave Site GsJh4

2.4.1 Location and history of the Site

Njoro River Cave is in the elevated section of the Central Rift Valley about a mile upstream from Egerton University. It is at an altitude of 2000m above the sea level (see also fig 1.2). Its geographical co-ordinates are 0° 22' S, 35° 55' E. It consists of a large rock shelter with a low cave extending in a westerly direction. On excavating, the site

yielded a variety of artifacts. The Cave is famous for its cremated burial of about eighty individuals accompanied by obsidian tools, grindstones and pestles, pottery, beads, pendants, and objects of wood, basketry and gourd (Leakey, 1950). The Cave is cut into a steep bank above the normal high water level. It is not large. It is almost circular and one meter broad and tapers systematically into the rock for almost 2 meters. The floor is covered with boulders and earth to a depth of about 30 centimeters at the back of the Cave reaching 1½ meters at the mouth and outside.

Njoro River Cave site was particularly known for cremation. As a result two remarkable facts have emerged from a study of this site: one is that the method of cremation practised at Njoro seems to be unique in East Africa. The other apparently rather surprising feature is that the people appear to be non- Negroid at this late date. Links with the present-day ethinic groups in East Africa are in fact very few. The only people reported some times partially to burn their death are the Bagishu. (Leakey, 1938).

2.4.2 Archaeological research in the area

Archaeological research in this site started with Mary Leakey in 1938 when she excavated the cave. At the time of this excavation a total number of adults corresponded almost exactly with the number of stone bowls (79) pestles (78) and lower grindstones (77) these were apparently grave goods accompanying both males and females.

The pestles and lower grindstones were, presumably, used for preparing vegetable foods, or grinding ochre. A number of differently shaped vessels were found, including shallow basins or platters with round bases deeper bowls with round or flat bases, bowls with convex sides and narrow sharp rims, and oblong or oval varieties of these forms. The

obsidian industry in Njoro is very like the Elmenteitan. The most numerous implements were crescents, which were mostly fresh and showed no signs of use

The next most numerous tools were two-edged blades, also essentially characteristic of the Elmenteitan culture Many of these showed signs of much use on both edges, and often both faces of the butt have been trimmed to reduce the thickness for hafting. The pottery, which included globular pots with pointed bases and shallow flat-bottomed bowls, also resemble Elmenteitan forms. Among about 500 sherds it was possible to distinguish 12 vessels, only two of which were sufficiently complete for reconstruction (Leakey 1950).

Njoro River cave is undoubtedly the most interesting Late Stone Age site in East Africa. Besides its uniqueness as a crematorium, it has provided the finest series of stone bowls, pestles, and grindstones as well as pendants. Beads from other East African sites are very rare and are generally thought to have been imported. The large number found at Njoro, and the fact that all material used for their manufacture exist in Kenya, however makes it probable that they were made locally (Cole 1963).

2.5 Comparative study

Comparative analysis here is looked at in terms of archaeological materials in the sites. It is important also to note that Hyrax Hill, Njoro River Cave and Lanet are Pastoral Neolithic sites while Kariandusi is a typical a*cheulian* site (refer dates in this chapter).

Archaeological materials (artefacts and features) in all the sites varies in terms of type and number. None of the archaeological artefacts in the Hyrax Hill site is *in situ.* The site is however dominated by features like burials, stone enclosures and round hollows referred to as *sirkwas.* Kariandusi site does not have any features save for plenty of archaeological

artefacts in form of stone and about one to two fossils. Features in form of earthworks and mounds on the other hand dominate Lanet site. Njoro River Cave does not have even a single artefact *in situ*. All the artefacts have been removed and some are stored in other museums throughout the country. One similarity applicable to all the sites is that the early inhabitants of these sites seem to have chosen them due to their proximity to water bodies where they drew their resources. This is evidenced from large water bodies in this region.

2.6 Conclusion

Detailed description of the sites has been attempted in this chapter. Geographical locations and history of the sites as well as their archaeological contents have been discussed. The information shows that the sites are located in the Lake Nakuru basin with varying distances between them. It is clear that the sites are similar in some aspects and also different in other aspects. In all the sites studied there is evidence of extensive use of stone in conjunction with other artefacts for various functions. Sites are also different; for example, Hyrax Hill, Lanet, and Njoro River Cave are predominantly Pastoral Neolithic while Kariandusi Site is basically Acheulian in nature and contents.

CHAPTER THREE

DESCRIPTION OF DATA

3.0 Introduction

This chapter presents a detailed study of the data as gathered in the research. Sources of data collection include observation and recording, interviews and use of secondary materials. Data description from the four sites under investigation has been documented and summarized in form of tables and graphs. Photographs have been taken of the sites with rich archaeological information to determine their present nature. The aim here is to determine whether modernization and natural forces have affected the sites.

3.1 Presentation of observed and recorded data

Observation was the most obvious and direct method of data collection. Each site and its contents were observed and recorded independently at specific times in the research period. A number of issues ranging from archaeological, environmental and development projects were taken into account. However, matters touching on environment and development were studied in connection with how they affected or rather destroyed archaeological resources.

The first site to be studied was Kariandusi and a number of factors were observed and recorded. First to be investigated was the archaeology of the site. The archaeological contents of the site including materials excavated and stored in the site museum were recorded. The site was found to be consisting of two sections the upper site and the lower site with a diversity of tools (artefacts). In addition, for the purpose of this study, the site

museum housing artefacts particularly from other sites in Eastern Africa is treated differently.

The upper region of the site contains materials in form of stone and bone while the lower part of the site contains materials made of stone only.

The tables below shows the results of the study as pertains to the upper and lower sites in terms of tool types and percentages.

TOOL TYPE	N	%
Handaxes	28	38.4
Cleavers	17	23.3
Stone balls (bolus)	7	9.6
Flakes	15	20.6
Choppers	4	5.6
TOTAL	**73**	**100%**

Table 1(a) Tool type and percentage at the upper site

TOOL TYPE	N	%
Handaxes	20	52.6
Cleavers	13	34.2
Stone ball	3	7.9
Flakes	0	0
Choppers	2	5.3
TOTAL	**38**	**100**

Table 1(b) Tool type and percentage at the lower site.

The above tables are out to show the current situation of the two major sites of the Kariandusi prehistoric site. The tool type and their frequency are based on the observation and recording during the research. Information pertaining to artifact numbers in both the upper and lower sites is shown with their percentages. Handaxes dominate in both the sites indicating that they were of much use to the early inhabitants of this site. Common to the

upper site but not found in the lower site are the flakes. The reason for this is not clear however it is important to note that tools from the upper site are made of quartzite while those from the lower site are made of lava. Quartzite produces good flakes than lava and this could be the reason as to why they were preferred. Another notable characteristic is that the total number of artifacts from the upper site was more than that of the lower site.

According to Kliendienst (1961), there existed over 300 tool types in the Kariandusi site. Of these tools hand axes alone were over 150. Comparing these with the present figures, it is evident that many tools have disappeared (table 1c). However, some of these materials are stored in the National Museums particularly in Nairobi. In spite of the fact that some materials are stored elsewhere, it is true that they were disturbed from their natural context.

TOOL TYPE	**N**	**%**
Handaxes	85	28
Cleavers	55	18
Stone balls	48	16
Flakes	60	20
Choppers	56	18
TOTAL	**304**	**100**

Table (1c) Tool number and percentage at the time of excavation. Source: Kliendienst (1961).

The other site investigated was Hyrax hill that is one of the sites in the Lake Nakuru basin that is apparently threatened with destruction. The site is made up of two major sites with different archaeological features. There is also a site museum-housing artifacts from other sites in the Rift Valley. It is important to note that there used to be another site known as

the Nakuru Burial site that was annexed and the land taken by the Nakuru Blankets Industry.

SITE I		SITE II	
Contents	Number	Contents	Number
Stone enclosures	3	Hollows Sirikwa	3
Burials	6	Mounds	2
Game (Bao)	1		

Table (2). Type and number of features at Hyrax Hill presently.

Table 2, show the features that are visible in site I and site II presently. Originally the site is said to have comprised of many features whereby Sirikwa holes and mounds have been destroyed by modernization giving rise to human settlements and industrial activity. Much of the land that originally belonged to Hyrax Hill site was annexed and donated to different institutions. This annexation affected most of the features that were discovered. Some of the institutions that benefited from the land include Hyrax Primary School, Shah Lalji School and the Nakuru Blankets Industry.

Lanet site was also investigated. The site is known for extensive earthworks and a series of mounds. It has hollows, which measured about 12m to 18m across a depth of 3m to 5m (Posnansky, 1957). According to the findings of the research most of the hollows now measure more than 30m across due to erosion at the edges. The hollows are also irregular and no longer take the roundish shape. However, it is important to note that the earthworks are still intact although some of the features have been destroyed. Depth has reduced considerably too. Lanet is one of the sites in the Lake Nakuru basin that is not preserved or protected from intruders, as it is not fenced. Staff from Hyrax Hill only manages the site.

The site that originally occupied about 11 acres of land has been reduced to only 4 acres by increased human settlement and urbanization. Since the site is not protected animals pass through the features hence causing more erosion on them.

Njoro River Cave site was excavated and materials (artifacts) discovered were numerous. All the materials recovered are listed in the table below:

ARTIFACTS	N	%
Stone bowls	81	25.7
Pestles	79	25.1
Lower grindstones	78	24.8
Grave goods	77	24.4
TOTAL	**315**	**100**

Table 3(a). Percentage of artifacts at the Njoro River Cave site at the time of excavation. Source: Mary Leakey (1938:125)

The site now lies on a private land. Bushes have invaded the site and accessibility is almost impossible. Because of the remoteness of the site, effective study of it was not possible. However, a number of materials from the site were recorded at Hyrax Hill site museum where they are stored. The materials include stone bowls, pestles and grindstones. They are however, much fewer than the ones discovered originally. Although some materials may have been stored in other museums, the fact remains that they have been disturbed from being *in situ*. The materials from the Njoro River cave currently stored in the Hyrax site Hill are as shown below:

MATERIALS	N	%
Stone bowls	3	8.82
Lower grindstones	4	11.8
Pestles	3	8.82
Grave goods	24	70.6
TOTAL	**34**	**100**

Table 3 (b). Percentage of artifacts stored at the Hyrax Hill site museum from the Njoro River Cave site.

3.2 Sites management, preservation and destruction

Kariandusi is a site occupying 4.7 hectares of land. The site has five officials: one curator, two guides and two watchmen. Each of these persons has specific roles to play. The duty of the curator is to ensure that the activities of the site run smoothly. He manages all the activities of the site including keeping record of the visitors. At the same time, he ensures that the materials in the site are well preserved. The duties of the guides involve receiving visitors and taking them around the site with the instruction of the curator. The watchmen oversee the security of the site ensuring that unauthorized persons and animals do not enter the site. Occasionally, they perform cleaning services. The site is opened for activity from Monday to Saturday from 8.00 am to 6.00 p.m. The site can be divided into three sections.

Section I is a museum housing a number of artifacts from other sites within the Rift Valley and other Eastern Africa sites. Replicas of skulls belonging to Australopithecus (both gracile and robust) and Homo erectus are well displayed in glass showcases. There are also drawings and maps showing major sites in Africa where discoveries have been made.

Section II is the upper site with numerous stone artifacts made of quartzite. A fossil of an extinct straight tusked elephant is found in this section. The artifacts are sheltered under a structure made of timber and iron sheets. Aeration is good but high temperatures from the scotching sun have caused the weathering and deterioration of the fossils. The stone artifacts are intact. The structure itself is not stable. The iron sheets are rusted and the timber is wearing away due to insect attack. The same conditions are characteristic of Section III, the lower site with stone artifacts. No fossil was discovered within this section.

The other issue under study here is the general condition of the site. Generally Kariandusi site has not been prone to much destruction. The site has a perimeter fence of barbed wire to keep away intruders. However, as shown in the photograph (plate 1.0), the site is threatened, especially to the eastern side where it borders the Diatomite quarry, due to mining that has advanced to the site. The fencing here has been destroyed and made lose as a result of soil erosion from the higher levels of the site. During seasons of high rainfall, washing away of artefacts by run-off may result. This will consequently lead to loss of important archaeological evidence.

Additionally, diatomite quarrying leads to emission of a lot of dust. The resultant effect of this is the rusting of the structures and their imminent destruction. Unfortunately, there are no initial photographs in the existing literature for comparison. The other line of interest is the effect of temperature on artefacts. Temperatures, especially excessive heat, in January, July and August have impacted on some artefacts and fossils. Temperature measured during the research showed that it increases up to 35^0c enough to cause wearing out of fossils. Observation done on the structures indicated that those sections that are worn out allowed the passage of sunrays directly to the artefacts and the most affected were fossils. High temperatures cause expansion and contraction of different layers of stone. Due to this

differential heating stone artefacts peel off their outer layers by a process called granular disintegration (Robinson, 1977). This is true with regard to the artefacts made of lava.

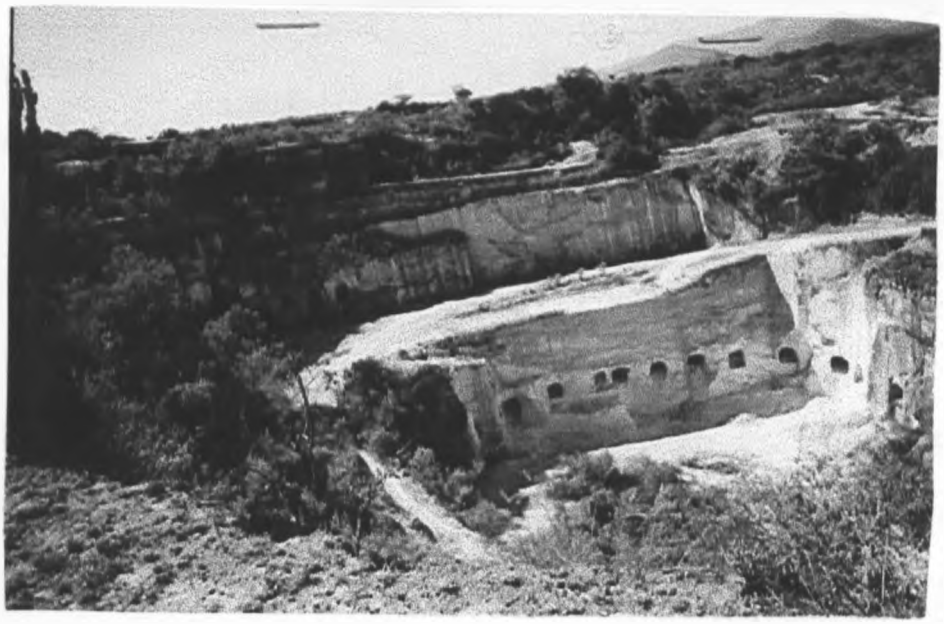


Plate 1.0. Photograph showing massive diatomite quarry adjacent to site II at Kariandusi

Visitors to the site consist of locals, specifically school children, university students and foreign tourists. Other visitors to the site include National Museums of Kenya staff, members of the Kenya museum society, Embassies, Colleges and institutions of higher learning.

The activities of the day at Hyrax Hill site run just in the same way as those of Kariandusi site. The officials to the site are five and perform the same duties as those carried out in

Kariandusi. Equally, for the purpose of this study, Hyrax Hill can be divided into units according to its archaeological materials and the changing events within or next to the site.

The first unit is the site next to the entrance to the Hill, which is a burial site. After it was excavated a structure was erected to shelter the remains. Currently the structure is missing having been consumed by occasional outbreak of fire. The other section is the site museum. In this site materials (artifacts) of all sorts are well stored and managed. Artifacts are well-displayed in glass covered cases. Materials stored here include stone artifacts, fossils (replicas), iron implements musical instruments and body adornment materials. Also maps and photographs of various sites in the central Rift Valley and Eastern Africa in general are shown. This section is generally well maintained and its materials are still intact even after spending several years there.

Section III is the place with hump and hollow features. This site is to the western side of Hyrax and is said to have had 13 round hollows (Sutton 1957). According to original dimensions given by Mary Leakey, the hollows measured 12m to 18m across and about 1.5 to 2m in depth. Current measurements are irregular with others measuring up to 20m across and less than 1m in depth meaning that considerable changes have taken place upon them. The mounds believed to be accumulation of rubbish middens and measuring about 2m high are not visible currently. This could be due to erosion that normally takes place when the soils are left bare as a result of fire or drought destroying grass and vegetation.

The last issue to be investigated was the general condition of the site and other events that have taken place next to or in the site. Generally the condition of Hyrax Hill is deteriorating. Security to the site is poor and intruders find it easy to enter the site. Herdsmen enter the site with their herds in search of pasture without any resistance (see

also plates 1.1and 1.2). Despite the fact that two watchmen are employed to take care of security, the site is prone to destruction. One evidence showing that security is laxed at Hyrax Hill, is the disappearance of the skeleton and imminent destruction of the structure that formed the very first site towards the main road to Nakuru. The structure was destroyed, and timber and iron sheets taken away by unknown people.

Hyrax prehistoric site has undergone considerable changes ever since Louis Leakey discovered it in 1920s. At the time of its discovery the Nakuru Burial site lay at the present location of the water tanks at the top of a small hill. The land now belongs to the Nakuru Blankets company. To the South-Eastern side lies a school known as Shah Lalji Academy. This part of land belonged to the site initially (see plate 1.1).

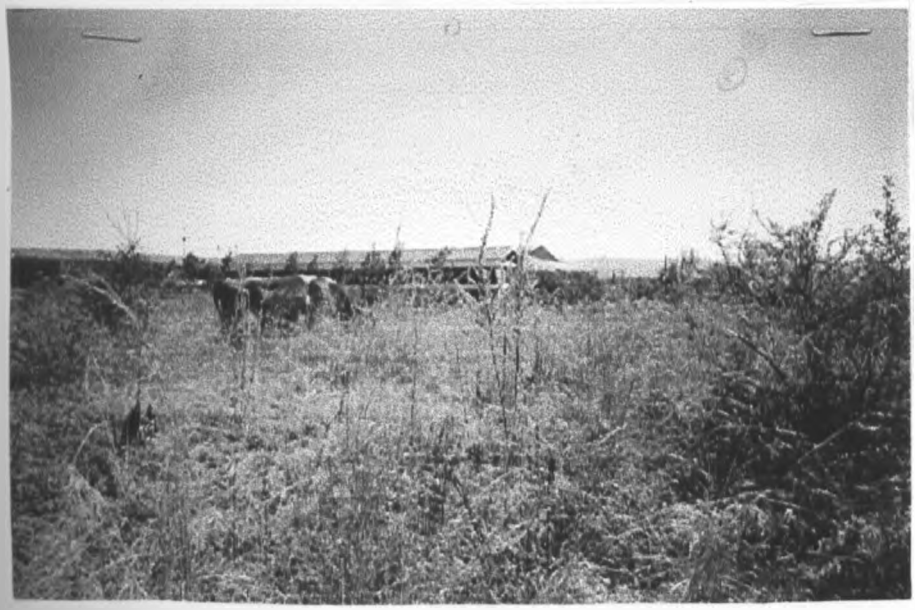


Plate 1.1 Photograph showing a cow grazing at the site with Shah Lalji School at the middle distance

Another part of the land was donated to Hyrax Primary school by the Nakuru municipal council in 1989 (see figure 1.3). To the western side there are boundary problems, which has resulted in the removal of the fencing. Fencing has been removed virtually in every section of the site (see plate 1.2).

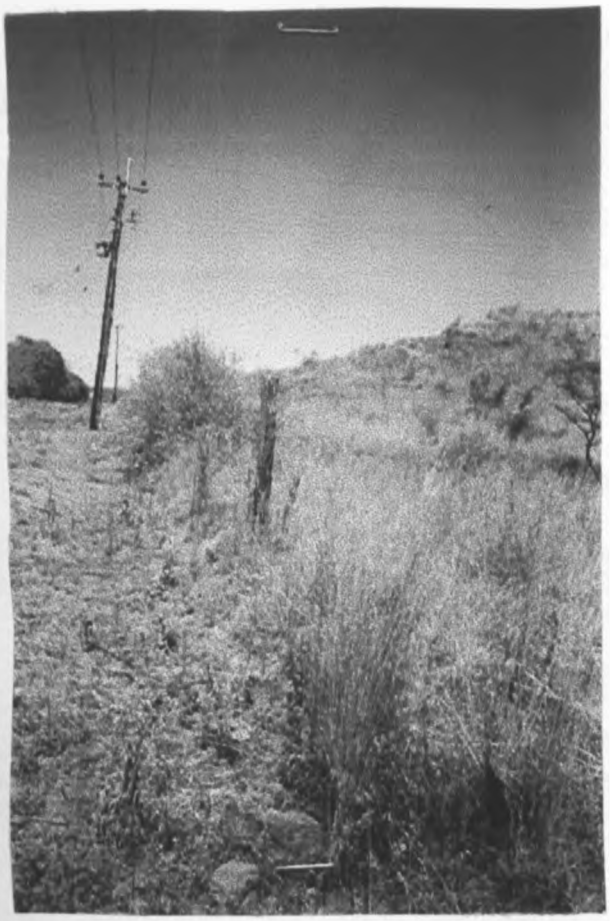


Plate 1.2 Photograph showing part of Hyrax Site with destroyed fence.

Visitors to the site consist of locals and foreigners. Locals are mainly school going children and university students. Foreigners are mainly from European countries and Embassies and come in plenty for summer holidays. Locals especially school children visit the site during public holidays. Most researchers also come from foreign countries for example, Britain.

Lanet site lies in an open area that is not protected by the National Museums of Kenya. The site is gazetted, however, but has not been preserved since its excavation by Merrick Posnansky in 1957. Staff from Hyrax Hill manage the site. But because the staff is mainly restricted to Hyrax Hill, the site has been subject to destruction especially from both human and animal activities.

One of the major changes is that the site that initially occupied 11 acres of land has been reduced to about 2 acres due to urbanisation and the need for settlement. Two earthworks consisting of banks of earth dug from an interior ditch on either side of the main Nairobi-Nakuru road, has been built over by a housing development scheme (see plate 1.3).

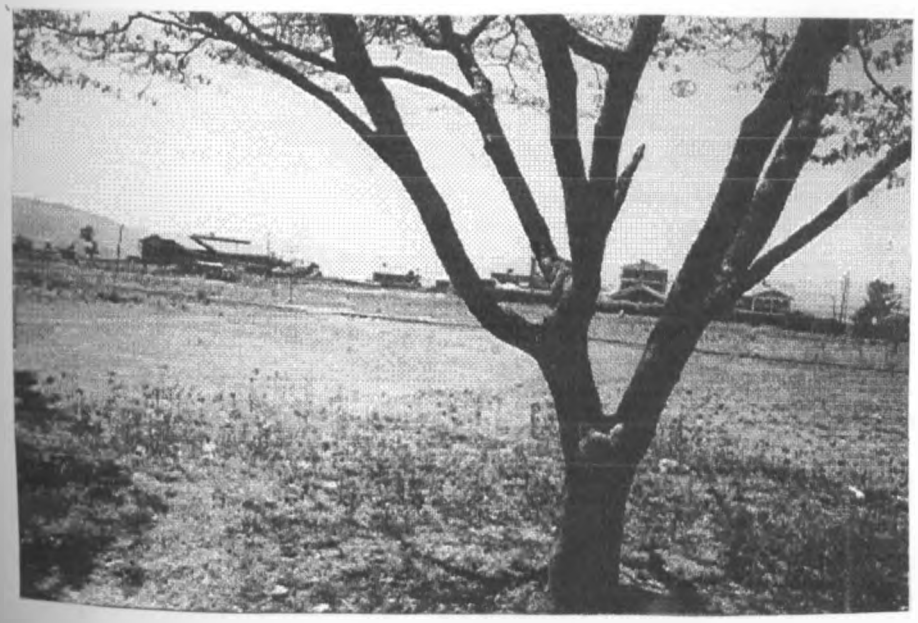


Plate 1.3 Photograph showing rapid rise in urbanisation and human settlement in the Lanet area with the railway line in the middle distance. Some of these buildings were constructed on archaeological features.

To the southern region were 50 to 60 earthen hollows, each measuring 12 -18m across (Posnansky 1957). Some of them have been destroyed by human activity e.g. dumping of refuse. A shallow ditch that measured about 50m in width and 3-5m in depth originally has been affected by in filling of soil caused by erosion due to occasional torrential rainfall and the acts of burrowing animals. Some of the hollows that measured about 12-18m across now have been opened further due to animals trembling on the loose soil while grazing. The effect has been a change in dimensions as most of them measure up to 25m long while the depth has reduced to less than 1m due to in filling of the soil.

After it was excavated in 1938, Njoro River Cave site has remained unpreserved and unprotected . All the materials discovered were removed and stored at the Hyrax Hill site museum National Museum of Kenya headquarters in Nairobi. Ever since, the site has been invaded by bushes and occasionally by Njoro River floods. Not even a single artefact is *in situ*. The site now lies in a private land and access to it is difficult.

3.3 Presentation of the results of interview

In total 136 people were interviewed from all the sites under investigation. 132 people represented the local communities and 4 people were museum staff. The sample size from each site was 33 people excluding museum officials. This was the minimum number that could be interviewed as recommended in social science research (Wood and Johnson, 1978). The people were chosen at random ensuring that each case was given an equal chance of being selected. Table 4 shows the category of the people considered for interview while tables 5(a) to 5 (d) shows the outcome of the interviews. The category of people interviewed represented virtually every section of humanity, from the most educated and influential people to the least educated. This made the sample representative of the whole population. Tables 5(a) to5 (d) also show variables adopted from the questionnaire

used in research, value labels, and number of respondents in each category of question, individual percentages and total percentages. Each site displays particular unique characteristics. The questions that were asked are shown in Appendix 1. According to the tables, the variables represent the questions asked to those considered for interview. Value labels show the alternatives given and thereby answers selected. 'N' represents the total number of the people that selected particular answers. '%', show the percentage weight at each category of answer given with its total. The tables show results from all the sites considered for interview. The results show that for each category of questions the respondents gave diversity of responses.

CATEGORY	N	%
Teachers	9	6.62
Students/Pupils	36	26.5
Herdsmen	49	36.0
Farmers	29	21.3
Business/Commercial land developers	7	5.15
Museum officials/Visitors	6	4.41
TOTAL	**136**	**100**

Table 4. Category of people interviewed from the Lake Nakuru basin

VARIABLES	VALUE LABEL	N	%	TOTAL %
Knowledge of archaeological site	Yes. No.	13 20	39.4 60.6	 100
Benefits	Don't know. Cultural/ leisure. Cultural,leisure/others.	20 7 6	60.6 21.2 18.2	 100
Visit	Yes No	5 28	15.2 84.8	 100
Problems	Yes. No.	3 30	9.1 90.9	 100
Suggestions	Don't know. Public education.,finance,local people in research,others. Public education, finance,local people in research.	16 3 14	48.5 9.1 42.4	 100
Consultation	Yes. No.	3 30	9.1 90.9	 100

Table5 (a). Distribution of the people interviewed at the Kariandusi site area.

VARIABLES	VALUE LABLE	N	%	TOTAL %
Knowledge of archaeological site	Yes. No.	14 19	42.4 57.6	100
Benefits	Don't know. Cultural, Leisure. Cultural, Leisure, Others	19 9 5	58 27.3 14.7	 100
Visit	Yes. No.	11 22	33.3 66.7	 100
Problems	Yes. No.	11 22	33.3 66.7	 100
Suggestions	Don't know. Public education., Finance, local people in research, others. Public education., finance, local people in research.	19 3 11	58 9.1 32.9	 100
Consultation	Yes. No.	1 32	3.0 97	 100

Table 5(b). Distribution of people interviewed at the Hyrax Hill site area.

VARIABLES	VALUE LABLE	N	%	TOTAL %
Knowledge of archaeological site	Yes No	10 20	30.3 69.7	100
Benefits	Don't know. Cultural, Leisure. Cultural Leisure and Others.	23 7 3	70 21.2 9.1	100
Visit	Yes No	1 32	3.0 97	100
Problems	Yes No	1 32	3.0 97	100
Suggestions	Don't know. Public education., Finance, local people in research, others. Public education, finance, local people in research.	23 2 8	70 6.1 23.9	100
Consultation	Yes No	1 32	3.0 97	100

Table 5(c) Distribution of the people interviewed at the Njoro River Cave site area.

VARIABLES	VALUE LABLE	N	%	TOTAL %
Knowledge of archaeological site	Yes. No.	13 20	39.4 60.6	100
Benefits	Don't know. Cultural, Leisure. Cultural, leisure, Others	20 7 6	60.6 21.2 18.2	100
Visit	Yes. No.	5 28	15.2 84.8	100
Problems	Yes. No.	3 30	9.1 90.9	100
Suggestions	Don't know. Public education, Finance, local people in research, others. Public education, finance, local people in research.	16 3 14	48.5 9.1 42.4	100
Consultation	Yes. No.	2 31	6.0 94	100

Table 5(d). Distribution of the people interviewed at the Lanet site area.

As pertains to the questions asked to the museum staff, the results of the study show that the officials did not differ in their sentiments. They had similar suggestions to the questions raised. One particular similarity was that the local people were never included or consulted in archaeological matters that were carried out in their areas. Another important issue raised is that, the Government has been reluctant in financing the protection of archaeological sites and their resources.

3.4 Study of visitors book

In this section secondary materials that have been analyzed include site museum records in form of visitors' books and other information guidelines about the site. The visitors' books revealed the frequency of visiting, kind of visitors, and the levies charged. The analysis was done for two years i.e. 1998 and 1999. The information has been presented in form of graphs. The percentages are worked from the number of visitors shown in the tables at the appendix 3.

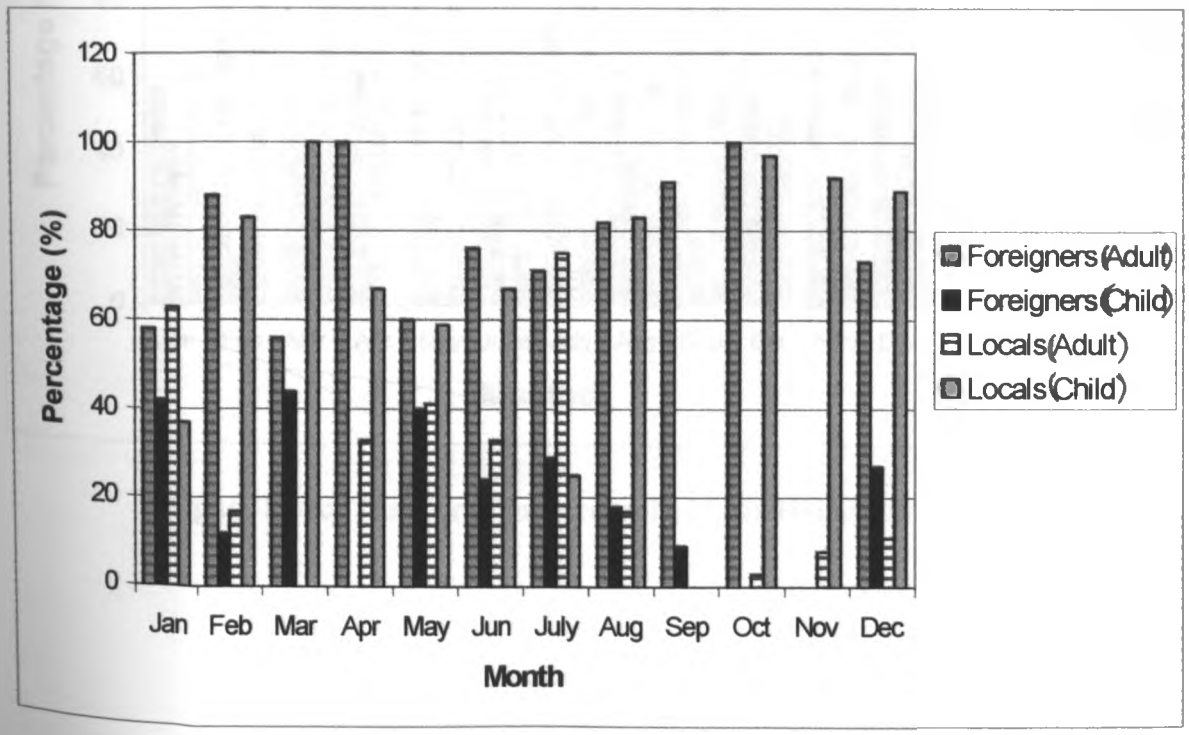


Figure 1.1 (a). Number of visitors to Kariandusi site in 1998

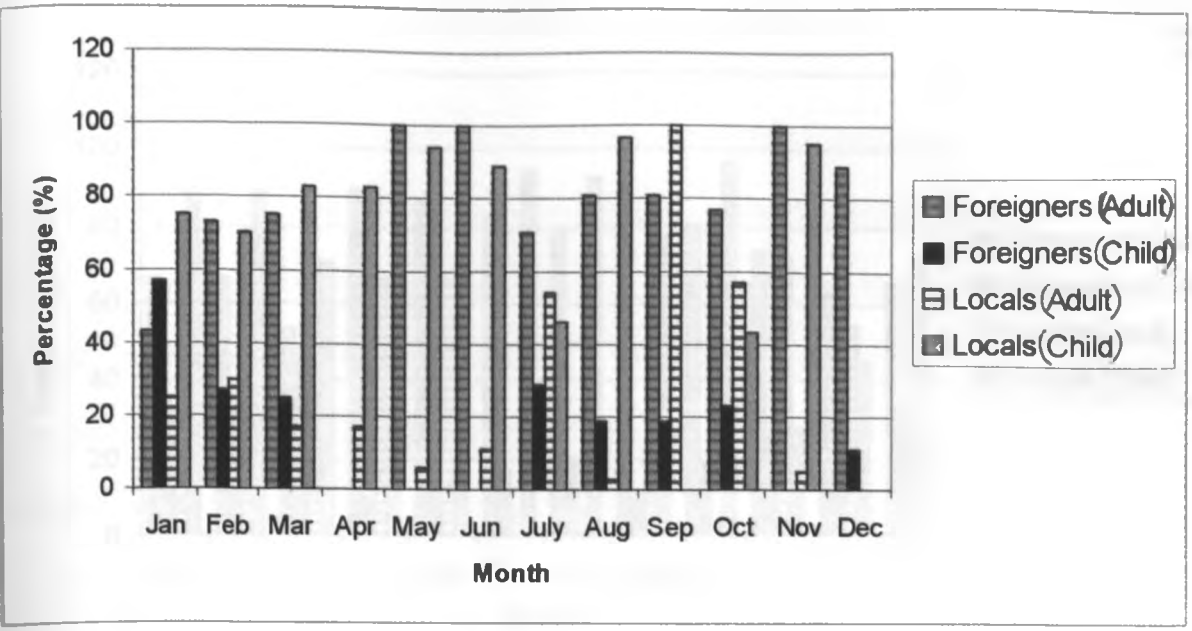


Figure 1.1(b). Number of visitors to Kariandusi site in 1999.

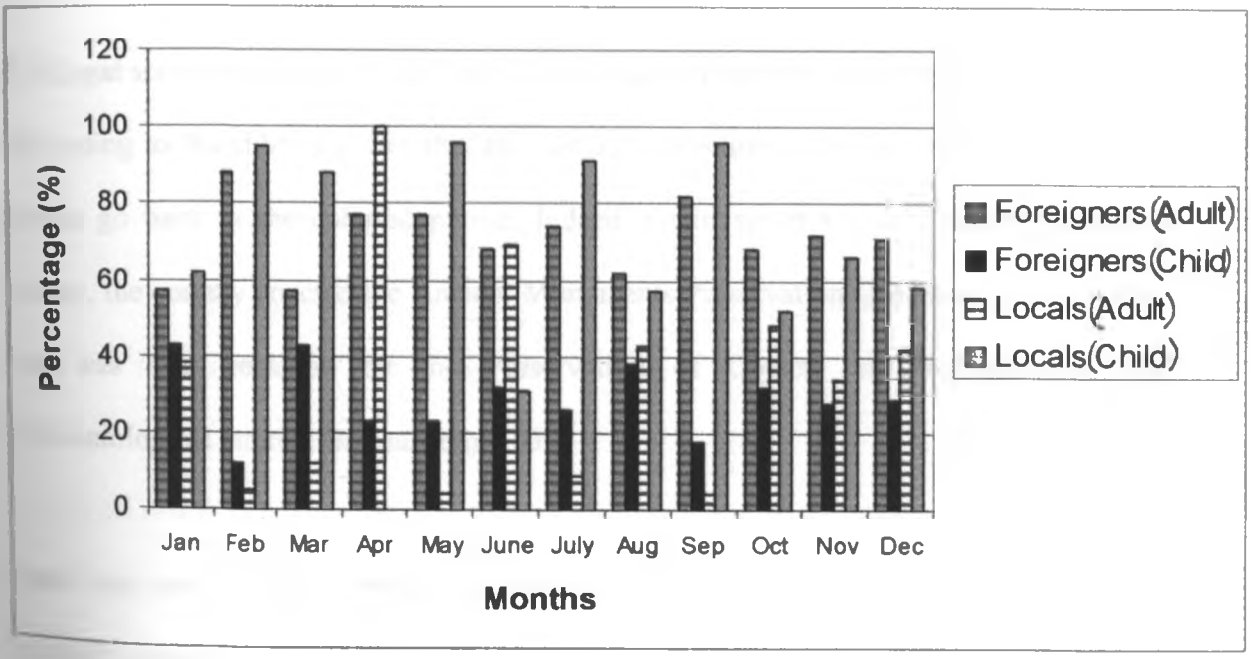


Figure 1.1 (c). Number of visitors to the Hyrax Hill site in 1998.

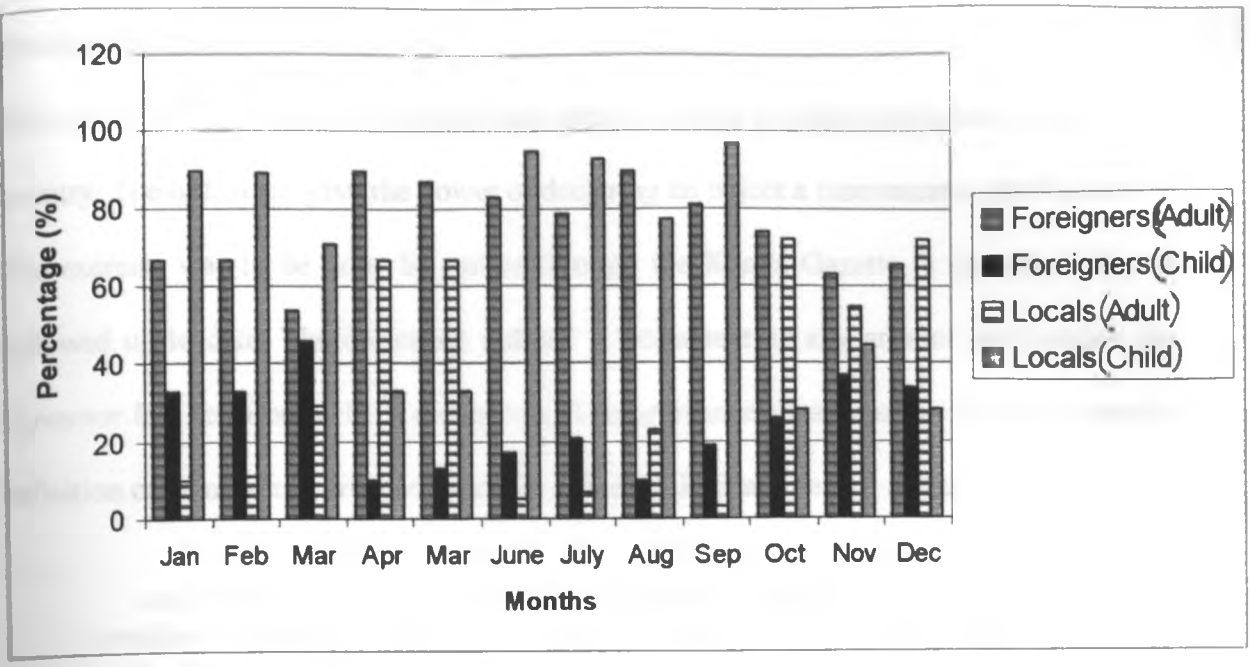


Figure 1.1 (d). Number of visitors to the Hyrax Hill site in 1999.

3.5 Legal structure for protection of archaeological resources in Kenya

According to Wandibba (1996), the laws for the protection of archaeological resources in Kenya go back to the colonial period. Indeed within seven years of being declared a colony, the country enacted the Ancient Monuments Preservation Ordinance of 1927. This law was later replaced by the Preservation of Objects of Archaeological and Palaeontological Interest Ordinance of 1934.

Since then the law governing archaeological resources has been incorporated into the country's constitution as Chapter 215 of the laws of Kenya.

3.5.1 The preservation of Objects of Archaeological and Palaeontological Interest Ordinance, 1934.

This ordinance was enacted to protect any archaeological or palaeontological object in the country. The ordinance gave the power of declaring an object a monument to the Governor. The exercise was to be done by notice through the Kenya Gazette, a procedure that is followed up to date. The ordinance defined a monument as any area of land, which the Governor has declared to be a monument. The ordinance then went on to give a precise definition of an object of archaeological or palaeontological interest, namely:

> *"...any structure, erection, memorial, tumulus, cairn, place of interest, pit dwelling, trench, fortification, irrigation work, mound, excavation, rock, rock drawing, painting, sculpture, inscription, monolith or any remains thereof, fossil remains of man or animals or plants, or any object (or any remains thereof) which is or are of archaeological, ethnological, prehistoric or historic interest, and includes:*
> *1). the Site at which such object of archaeological interest was discovered or exists;*
> *2).such portion of land adjoining the said Site as may be required for fencing or covering in or otherwise preserving such object of archaeological or palaeontological interest ; and*
> *3). the means of access to and convenient inspection of such object of archaeological or palaeontological interest; "* (Government of Kenya, 1962 3-4)

3.5.2 The Antiquities and Monuments Act, 1983

This is the only conservation legislation passed in the Kenya since independence. The Act defines an antiquity as any movable object, other than written one, made or imported into Kenya before 1895, or any human, faunal or floral remains of similar antiquity. On the other hand, a monument is defined as an immovable structure build before 1895, or artwork or any immovable object or earthwork executed or constructed before that year. The Act also gives the responsible minister power to declare any place or immovable structure of historical interest a monument, regardless of its age. Finally the Act gives the National Museums board the ultimate responsibility of enforcing its provisions (Government of

Kenya, 1984). Detailed examination of the strengths and weaknesses of this Act has been done in the chapter five.

3.6 Conclusion

Data description has been attempted in this chapter. Information on site preservation and destruction has been worked out in form of tables and graphs. All sites present varied degrees of destruction and management. Despite the efforts made in protection and management, it is clear from the analysis that destruction is apparent in all the sites. Information on archaeological public education reveals that it is underdeveloped. Most of the people interviewed showed high degree of ignorance on archaeological matters.

CHAPTER FOUR

DESCRIPTIVE ANALYSIS

4.0. Introduction

The emphasis of this chapter is to explain and analyse data that has already been presented. Data from all the sites under study has been analysed to give meaning to what is actually happening on the ground. Detailed explanation has been given to each case study. It is worth mentioning here that a wide range of factors have been considered. The two basic goals of this chapter therefore are to relate the data collected to the actual occurrences that always lead to site destruction and to find out whether the objectives of the research have been met.

4.1 Element of observed and recorded data

A close study of the data collected in the previous chapter shows that archaeological resources are endangered components of human culture. Despite the fact that archaeological resources are plenty, little effort has been made to safeguard this important cultural data bank. Archaeological resources reflect human culture of the past, but then this culture is at the brink of extinction.

In the Great Rift Valley, the central rift that encompasses the lake Nakuru basin is endowed with a lot of archaeological features and materials. In spite of this, the basin is an area that is under threat with increased human population accompanied with the need for settlement, Industrialization and urbanization.

At the Kariandusi site, archaeological materials there are no longer safe. The major activity next to this site is the famous mining of diatomite. Perhaps, this has outdone the importance of the rich cultural history in the area. The mining has had negative impacts on the site. First and foremost it has led to a big majority of people migrating to this region. This may probably justify the fact that some materials have been lost from the site to unknown hands. The motive for removing artifacts from the site is not clear but it is evident that they have been displaced from their natural contexts. Early researches have given an approximate amount of the materials that were recorded in the site when it was first excavated (see chapter three)

While the archaeological site is often the centre of concern, we should remember that our concerns are better targeted at a larger picture that may be designated as the cultural resource base. Lipe (1984), has defined the cultural resource base as "the material things produced by past human activity the artifacts, manufacturing debris, middens, structures, monuments and the like that have survived from sometime in the past to the present". Based on that definition, landscapes of past cultures may also qualify as culture. Looking at the situation in Kariandusi then all is not well, the landscape has been destroyed by industrialization (refer plate 1.0). This is an indication of lack of interest in our cultural history that is deeply rooted in the social and political fabric of the country.

Despite site destruction at Kariandusi, the Government of Kenya through the National Museums of Kenya has tried a great deal to safe guard some of the materials excavated. At Kariandusi there are stone and bone artifacts. There are also site structures averagely maintained and sheltering other artefacts dominated by stones.

It is the perception of what is crucial and worth safeguarding that determines what can be spared At Hyrax Hill, other projects including construction of buildings surround the site, which are deemed to be of high value than the 'dead past.' There exists schools and industries that are taken to be of high value than the site itself and this in particular is the reason why much of the land belonging to Hyrax Hill site and rich in archaeological stuff was given to these institutions. Accordingly, a large segment of the public is not fascinated by the ancient past. Public interest in archaeology is the basis of heritage conservation

Despite the gains made in passing heritage conservation legislation, site looting and vandalism remain major threats to the archaeological resource base. More stringent laws alone will not resolve this problem. Rather an effective solution requires a major change in public opinion to increase awareness and understanding of our archaeological heritage. The conception is true with Hyrax Hill site where a skeleton was stolen and the structure housing it destroyed by fire set by arsonists. Notable cases of site destruction at Hyrax Site originate from boundary conflict that exists between the site and the neighbouring community. This is the prime reason as to why the perimeter fences are constantly being destroyed.

At Lanet and Njoro River Cave sites, destruction is also apparent although the former has suffered more. The two are similar in the sense that they are not preserved Staff from Hyrax Hill Site however, manages Lanet site. But management has not been effective since the officials are mainly based at Hyrax Hill and do not fully take care of Lanet. For example dumping of refuse at Lanet site is common. This is just because it appears to be an open space and people taking it to be a neglected area. There are footpaths and vehicle tracks criss-crossing the site as well as rapid development in the vicinity indicating that

nobody is at wake to stop that. This compares Hyrax Hill site where there are several footpaths crossing through the site. The efficiency of the staff to manage Lanet site and Hyrax Hill is questionable. Therefore it is obvious that the continued integrity and conservation of the sites require constant vigilance, combined with suitable management and local community co-operation.

One other major factor in site destruction at Lanet is the increased human population as a result of expansion of the Nakuru town. Nakuru town is busy and expanding to all directions including the Lanet area where the site lies. Major developments here include the construction of housing estates on some of the sites. Njoro River cave site now falls in a private land due to failure of the National museum of Kenya to protect it. This has led to the loss of the site although it yielded a lot of materials at the time of excavation. However, the site has been much published in the archaeological literature of the Lake Nakuru basin.

In relation to sites destruction, (table 6.) below shows the levels based on grading system. The form of destruction is given in numbers (1,2,3&4) showing deterioration in the order of permanence. The kind of arrangement is that order 1 portrays a site that is considered not much affected. Order 4 on the other hand shows a site that is completely destroyed. Reasons are given why a particular site is placed in a given category.

Plate No.	Information carried	Level of destruction	Reasons
1.0	Diatomite quarry next to Kariandusi site	3	Massive quarry that has destroyed landscape but can be filled after exhausting diatomite to get back to original landscape.
1.1	Cow grazing at Hyrax Hill site	1	Easily manageable since owner can be stopped at once.
1.2	Destroyed fence at Hyrax Hill site	2	This is a temporary problem since with time and commitment the fence can be repaired.
1.3	Housing estate at Lanet site	4	Considered as completely destroyed site since demolishing of houses is impossible with current trend of increase in demand for settlement.

Table 6. Photograph interpretation of sites destruction based on grading system.

Spoerl (1988) holds that losses of archaeological sites and data can result from management practices on the part of the agencies charged with this responsibility Actions leading to resource destruction can include in-effective management orientations, a lack of rigorous assessment methodologies for evaluating the significance of sites, or failure to fully realise the impacts that an agency's activities or operations may have on archaeological resources. In the case under investigation, the provisions stipulated in the Antiquities and Monuments Act of 1983 have not been fully implemented. The Act clearly indicates that sites that are archaeologically potential and under threat of destruction should be acquired by the national museums of Kenya. This is because some the sites were neglected after excavation. An example being Njoro River cave. Although the materials were removed and stored in Hyrax Hill and Nairobi museums, it regrettable that they were disturbed from their contexts. In fact archaeological research destroys its own research

base. This is true with regard to many archaeological sites that are excavated and abandoned.

4.2 Element of reported information

The aim is to establish whether archaeological public education has been effected. We all have a right to our past and our past is the worldwide record of human experience. Each human being has an inalienable right to use the intellectual and spiritual values inherent in archaeological materials to understand and/ or believe one is secure in her or his place in the physical and social world.

Each individual and each governmental unit has a responsibility to protect the human past. This includes education of the general public (both adults and children), the individuals responsible for managing direct adverse impacts for archaeological materials for example development planners, engineers, farmers, miners, and forest officers) and the individuals with archaeological management responsibilities

According to the interview, it is evident that archaeology has not fascinated many people. One of the major issues that emerged in the research, is that of the people interviewed a great number expressed their ignorance of archaeology and what archaeologists do. On this issue and in the Kariandusi area, 39.4% claimed to know what archaeology is as 60.6% denied. The same question was asked to people at the Hyrax Hill area that saw 42.4% having knowledge of it, as 57.6% said no. At the Njoro River cave site area, 30.3% claimed to know while 69.7% denied. Lastly, at the Lanet area 39.4% claimed to know what archaeology is, as 60.6% said no. Even amongst those who claimed to have heard of the discipline, many never knew the deeper concerns of it. In fact even among the educated,

there was confusion between archaeology and geology. This is clearly an indication that archaeological public education is still underdeveloped

The other issue that raised more concern is the benefits accrued from archaeology. It was paradoxical to learn that even amongst those who know what archaeology is, many could not perceive any benefits from it. At the Kariandusi site area, 60.6% were not aware of any benefits that could be accrued from archaeological sites. 21.2% of the people talked of cultural education and leisure while 18.2% mentioned tourism alongside this ones. At the Hyrax Hill area, 58% denied to know of any benefits while 27.3% talked of cultural education and leisure. 14.7% of the people combined those benefits with tourism. At the Njoro River cave site area 70% were not aware of any benefits, 21.2% said cultural and leisure while 9.1% talked of cultural education, leisure and tourism. Finally, at the Lanet site area, 60.6% were not certain of any benefits as 21.2% talked of cultural education and leisure 18.2% were for cultural education, leisure and tourism

On the issue of whether people visited archaeological sites, there was clear indication that majority of people do not. Asked why, many of them talked of not being a ware of the sites, as others saw no need to do so. Even amongst those who claimed to visit the sites, it was still difficult to establish whether they were saying the truth. Interestingly, even amongst those who said that they were aware of the existence of the sites most denied visiting them claiming to be pressured by other important issues like farming or doing business. At the Kariandusi site area, 15.2% of the people said that they visit the site while 84.8% said they did not. At the Hyrax Hill site area, 33.3% said they visit as 66.7% denied At the Njoro river cave site area, 3.0% said that they visit while 97% do not At the Lanet site 15.2% visit while 84.8% do not.

On the question of whether people had problems with archaeological sites next to their lands, a great majority denied either just because archaeology does not have any intimate relationship with the public or they denied for fear of victimisation. The public is always suspicious of any attempt by foreign people grilling them. However, few people agreed that they have problems with the sites. Many of them were herdsmen and immediate neighbours who have boundary problems the sites. Herdsmen were uneasy due to the fact that they are not allowed to graze in the fields belonging to the sites. At the Kariandusi site area 9.1% said that they had problems with the site while 90.9% denied. At the Hyrax Hill area 33.3% accepted having problems while 66.7% said they did not. At the Njoro river cave area, 3.0% said they did have problems especially of snakes and wild animals as 97% denied. At the Lanet area, 9.1% said that they had problems while 90.9% said they did not.

The interviewees had mixed reactions when asked what should be done to improve the condition of the sites Those who saw the importance of the sites agreed with suggestions given like financing the protection of the sites, including local people in research and improving public education. One thing that fascinated most of them into agreeing to the suggestions given, is the improving of public education and including them in researches done. This gave them a sense of consciousness that they were a considered lot in the world of academia. It was then noted that local people could only be co-operative if integrated in social and economic matters touching them. At the Kariandusi site area, 48.5% had no suggestions, while 9.1% gave public education, financing research and including local people in research plus other s (e.g allowing people to visit sites at a cheaper rate) as suggestions. 42.4% gave those suggestions without citing others. At the Hyrax Hill area, 58% of the people did not have any suggestions to make while 9.1 % talked of public education, financing research and including local people in research. 32.9% talked of public education, financing research and including local people in research only. At the

Njoro river cave site area, 70% did not have any suggestions to make while 6.1% talked of public education financing research and including local people in research plus others like repossessing of the site by the government. The remaining 23.9% talked of public education, financing research and including local people in researches done only. Lastly at the Lanet area, 48 5% were not certain of suggestions to make, as 9.1% talked of public education, financing research and including local in researches plus others like stopping people from dumping refuse at the site and illegal allocation of public land. 42.4% talked of public education, financing research and including local people in researches only.

In the last issue almost all people interviewed claimed that they were never consulted during fieldwork researches done. This reflected the fact that archaeology is increasingly becoming a monopoly of the elite. At the Kariandusi site area, 9.1% of the people talked of having been consulted during fieldwork researches done at the site while the remaining 90.9% denied. At the Hyrax Hill site area, 3.0% said having been consulted while 97% denied. At the Njoro river area, 3.0% accepted having been consulted as 97% denied. Lastly, at the Lanet site area, 6.0% claimed to have been consulted while 94% said otherwise

With the issue of museum staff, the results showed that the government offered little support to the archaeological sites. The officials interviewed showed dissatisfaction with the government's effort in improving archaeology and cultural history.

4.3 Question of visitors to the sites

Analysis of the visitors to the sites particularly Hyrax Hill and Kariandusi has been done in the previous chapter. The objective here is to explain factually why visitor's number to the

sites indicated changing trends. The information shown in figures 1.1(a) to 1.1(d) can also be referred to

Looking at Kariandusi site, there were two categories of visitors in 1998 defined as foreign visitors and local visitors. During this time, 407 visitors (both foreign and local) visited Kariandusi. The total revenue collected from these visits was Ksh.22300. However, the number of foreign visitors was more than local visitors. The months with no visitors both local and foreign were September and November, probably due to high rainfall. The months with high number of foreign visitors were January and December, times when the local whether is relatively good In the case of local visitors, school children and university students were predominantly registered. However, in the case of foreign tourists children were fewer showing these were families accompanied by their children

In 1999, the number of visitors to the site declined to 364 (see table11b). The reasons for such a trend are not clear The total revenue collected also dropped to Ksh. 17850 for both cases. In fact in the case of foreign tourists, there was none in April. Also there was no registration of local visitors in the month of December since during this time most schools and colleges remain closed. However, with local tourists the total number of children was high as opposed to adults in that year. And in this case the number of foreign tourists was low than local tourists. This was as a result of increased insecurity in the state. This is a time when there was constant murder of tourists reported in the international press. The economy of the country was also registering negative growth.

At Hyrax Hill site the number of visitors to the site in 1998 was 745 people (both local and foreign). The total revenue collected was Ksh. 44,732 and the highest number of foreign tourists was recorded in July and the lowest in February (see table 11c). In this case,

children were still fewer than adults in number. As for local tourists, children were more than adults indicating visits by school parties. In 1999, the number also dropped to 649 in both cases but with 64% adults and 36% children in the case of foreign tourists considered high in month of December. The lowest was in March that saw adults represented by 54% and children 46% (see table 11d).

In general, it is evident that the number of visitors to Kariandusi site was low with 30% as compared to those visiting Hyrax Hill with 70%. One major reason here is that Kariandusi is located in the remote part of the lake Nakuru basin while Hyrax Hill site close to Nakuru town. Most of the tourists in Nakuru spend most of their time in town and end up visiting the nearest site that is Hyrax Hill For sites like Lanet and Njoro River, no records were available to show the number of visitors since the sites are not protected. These sites are not open to the public and not easily accessible.

4.4 Legal structure for protection of archaeological resources

For the purpose of this, the Antiquities and monuments Act of 1983 is under consideration. According to Wandibba (1996), the antiquities and monuments Act of 1984 is an almost wholesale reproduction of the 1934 ordinance. Only cosmetic changes were made in some words to take care of the changing political reality. It is probable that the people who had participated in drafting the 1934 ordinance also took part either directly or indirectly or by proxy in drafting the 1983 Act. The Act does not make provisions for punishing those who might refuse to surrender part of their land that has been declared a national monument. The other issue has to do with ensuring that no antiquities are taken out of the country illegally. In conclusion, the current legislation is inadequate for the purpose it was meant to serve. In view of this, exploration surveys should be made compulsory for any projects involving donor funds. Today only World Bank projects incorporate this element.

Relating the above argument to the current study, it is evident that sites like Hyrax Hill, Njoro River Cave and Lanet have not been safeguarded as the Act stipulates. The sites face extinction unless stringent measures are taken. For example the owner of the land where Njoro River cave site falls would not agree to lose his land to the National Museums and the government seems to be lenient on that matter. Hyrax Hill site has boundary problems with neighbours and the provisions of the Act have not been adhered to. Lanet site is getting absorbed with the sub-urban development and the National Museums of Kenya has not done anything to date.

4.5 Conclusion

Chapter five gives an analysis of the data described reflecting the actual level of archaeological knowledge in society. Extensive study of archaeological site destruction has been studied. Findings by other scholars in the same field have been elicited. Comparative analysis of the sites shows that archaeological materials differ across the sites although they are founded within the Lake Nakuru basin. Site destruction varies across the sites with the most affected ones being those that are not protected. However, even the Protected ones are in a crisis.

CHAPTER FIVE

SYNTHESIS AND CONCLUSION

5.0 Introduction

This chapter draws attention to the actual findings in the research. The other aim is to determine whether the set objectives of the research have been realized. There are basically two tasks to this research. The first is to establish the efforts made by the government in protection and management of archaeological resources in the Lake Nakuru basin. The other task is to show the human and environmental factors in site preservation, management and destruction. Recommendations pertaining to the whole problem under study have been forwarded.

5.1 General overview of the problem

Archaeological sites are widely recognized as being limited in number and non-renewable. Site conservationists and the interested public are acutely aware of the intrinsic nature of this resource base and of the need to protect it, both for wide use for research and for preservation of significant resource elements for future generations.

Unfortunately, the characteristics of the archaeological record that make it so valuable also render it highly vulnerable to destructive forces generated from both natural and human forces. Cultural materials that make up the archaeological context range from being highly perishable, capable of being only preserved under the most specialized conditions, to nearly indestructible items such as stone and ceramic artifacts. However, for the archaeologists the spatial and temporal relationships are as important to reconstruction and interpretation of the past as the cultural debris itself.

It is evident from the research that public exposure to archaeology is very poor. To most of the public there is no role for them in the interpretation and preservation of prehistoric or historic archaeological sites. At almost no university, library, or historic site is such a role offered to the public. A museum is the archaeological purveyor most likely to involve the public in its archaeology programs.

Archaeological site destruction has been apparent in the lake Nakuru basin. Human activities that have led to site destruction in this area include increased construction work, malicious damage, animal grazing, industry and mining activities. Environmental factors that lead to site destruction have not been clear but the increased changes in weather patterns sometimes lead to excessive heat that lead to wearing out of some artifacts as explained in previous chapters.

Even amongst the educated archaeological information is only available at higher levels of education like universities and other tertiary colleges. No archaeological information is disseminated at lower levels of education for example, primary schools and secondary schools This has further diminished the development of the discipline. Protective laws, though enacted and clear on their provisions, have not been affected to the letter. Laws governing archaeological resources have been lenient on their destruction this has caused more with impunity.

No alternative bodies and organizations have come up to the aid of archaeological resources. It is only the National Museums of Kenya that has the sole mandate of seeing into archaeological heritage. Other bodies are only concerned with research.

From the foregoing discussion, it is evident that if site management and protection is to avoid a veto, it must become relevant in the eyes of those that do not understand it, and yet continue to pay for it. In what context and in what level should this relevance be expressed?. That is the fundamental question to be asked. Modern civilization, more than any which has gone before, is living visibly and dangerously beyond its means. The power and knowledge at our disposal are being used to, as never before, to drain the treasures of the past and follow from the future. Science and scientists should feel morally and ethically obligated to rationalize their work by addressing globally relevant issues, and site conservationists should not be exempt.

Thus, the future of humanity depends on global sustainable growth. Those charged with the responsibility of protection of important historical and cultural sites should provide examples of such growth from the past and demonstrate what life was like under sustainable conditions (in balance with the available resources). They should show what happened when a path was chosen that no longer allowed the balance to be sustained

The most relevant potential issue to conservationists is to raise the level of awareness of the public to the value of knowing and appreciating the diversity of the past and, more importantly, realizing the adaptive advantage of that knowledge. The richness of a culture is measured by its diversity, and the success of a culture is engendered accordingly by that richness. It keeps it culturally rich and even nourishes it.

5.2 Specific overview to the problem

In this sub-section, the Antiquities and Monuments act of 1983 is taken to be 'central' as pertains to the protection of places of historical value. The aim here is to establish whether the contents and requirements of the Act have been reflected in practice. At this level

particular clauses of the Act that are deemed relevant to the study are isolated for discussion. The clauses are as follows:

(a). Archaeological sites and other places of historical importance to be maintained. Maintenance includes the fencing, the covering in, repairing, restoring and cleansing of a monument. It also includes the fencing or covering of a protected area, and the doing of any Act which may be necessary for the purpose of maintaining or protecting a monument or a protected area or of securing convenient access thereto.

(b). The Act requires that for every person for which an exploration license is issued present or the institution which he/she represents, present an adequate report or publication on the results of exploration or excavation to the Minister of Home affairs and National Heritage.

(c). The Minister from time to time is required by notice of Gazette, to prohibit or restrict access thereto, or any development thereof, or the use thereof of agriculture or livestock, or any other activity thereon which in his opinion is liable to damage a monument or object of archaeological and palaeontological interest therein.

(d). An authority may, with the sanction of the Minister, enter into a written agreement with the owner of a monument and any other person or persons for the protection or preservation of the monument.

(e). If the Minister apprehends that a monument is in danger of being destroyed, injured or allowed to fall or decay, he in conjunction with the National Museums Board may acquire

the monument by way of compulsory purchase under the provisions of the Land Acquisition Act.

The above sections of the Act clearly stipulate what to be done in the protection of archaeological sites and other places of cultural value. Despite that, some archaeological sites especially those under investigation have not been well protected. The actual occurrences on the ground indicate that implementation of the requirements of the Act is too far reached. Looking at Hyrax Hill site for example, show that the perimeter fence particularly has been constantly destroyed in bit to gain access to the site. Cattle grazing at the site is frequently noticed. This is actually done by the immediate neighbours who are in boundary conflict with the site. There are also several footpaths crossing the site (see also plates1.1 and 1.2). Lanet site has faced a major problem of urbanization and human settlement (see also plate1.3). Njoro River cave site has been covered by bushes.

In many researches done, the reports are not forwarded to the Minister as the Act stipulates. Instead they are kept in archives of the institutions that sponsor them and are not even accessed by other people. This leads to a situation where the government is not informed of the progress at the sites. When such a problem occurs, sites can be easily destroyed with impunity.

Compulsory purchase of the sites in private lands that are in threat of being destroyed has not been taken seriously. If the provisions of the Act were to be implemented, Njoro River cave site and the adjoining land thereto would have been purchased long time ago.

5.3 Recommendations to the above findings

Pertaining to the above findings, and if site management and protection is ever going to have the impact of "army with banners", the following recommendations must be taken into consideration

***General recommendations*:**

(i). Information must reach the public. Kenyans not only in the lake Nakuru basin need and indeed, deserve to know about their heritage and the history and prehistory of the nation. Professional site conservationists in the government, non- governmental organizations and academia must explain in articulate and compelling terms, why archaeological site protection is important, the public benefit derived from archaeology, and how looting and vandalism damage that public benefit. Guidelines and statements by professional organizations and conferences with conservationists and archaeologists talking to themselves are not going to the do the job. Instead we need to go to the public and tell them about our research. We need to bring our discipline and the information we are excavating into the sunshine.

(ii). Education and training must be improved. Educational outreach programs must be developed to inform and sensitize the public, and be targeted to members of special groups such as law enforcement personnel, students and the media. Training for government personnel dealing with cultural resources must emphasize archaeological values and ethics, proper methods of legal requirements and enforcement procedures. Curators should be trained in public relations so as to work with the media and the public to highlight site protection and management. Those responsible for particular sites such as Hyrax Hill and Kariandusi should get adequate training in conservation.

(iii). Laws must be strengthened. Existing laws, regulations, government programs must be revised both to increase penalties against professional looters. Appropriate laws should be enacted to improve protection for burials and sites on private lands. Tax incentives and conservation easement programs must be provided for site protection on private lands.

(iv). Protection efforts must be increased. Substantially more money and staff are needed to improve protection efforts by federal land managing agencies. Agencies at all government levels must enlist the general public in archaeological resource protection.

(v). Agencies must improve co-ordination. Co-operative agreements must be negotiated among different parts including land managing agencies, for the protection of archaeological resources. Agencies must develop ways to share both personnel and information.

(vi). More research is needed. There should be enough hard data about archaeological looting and vandalism. Field research must document where and when looting occurs, the types of sites targeted and how different types of sites are looted. Behavioral research has to be available to help determine the causes of looting and vandalism, the motives of different types of perpetrators, and the most effective different strategies.

(vii) Alternatives must be provided. The interested public must be provided with alternative ways (ethical and legal) to participate in archaeology. This includes opportunities to participate in local avocation, volunteer projects and opportunities to make financial contributions that aid archaeological research and protection.

Specific recommendations:

(i). Njoro River cave site and adjoining land to be acquired by the National Museums of Kenya. Lanet site to be given adequate protection from the Government against increased urbanization threatening to engulf the site. Site museums to be established at these sites and curators posted there.

(ii). Security to be improved at those sites already protected to curtail trespass into the sites.

(iii). Prescribing the forms of, and conditions to be complied in issuance of exploration licenses and export permits.

(iv). Controlling access to monuments or protected areas.

(v). Regulating the management of a protected area.

(vi). Prescribing penalties for breach of any such rules.

5.4 Main research impediments

The research was characterized by some problems. The main research hindrances cited were as follows:

(1). Language barrier. Most of the people interviewed were illiterate. Even amongst those with above average education could not comprehend intricate archaeological terms.

(2). Lack of adequate information. Of the people interviewed in the research, most of them showed suspicion of the questioner's motive hence giving inadequate information.

5.5 Conclusion

This chapter presents a study showing the extent to which the research objects are realised. The chapter shows that the intended aim of the study has been attempted. The main task of the research is to find the problem of archaeological site protection and management in the Lake Nakuru basin. The actual findings to the problem have been established revealing that sites that are of historical importance have not been properly protected and managed as per

the stipulation of the Antiquities and Monuments Act of 1983. A range of recommendations has been made on archaeological sites and their resources can be better protected.

BIBLIOGRAPHY

Abungu, G.H.O. 1984. Site catchment analysis of pastoral neolithic and pastoral iron age sites of the Naivasha–Elmenteita basin. *Unpublished B.A Dissertation; University of Nairobi.*

Agbaje, W.B. 1990. Northwest Yorubaland; prospect for tourism and development and research. In *Cultural Resource Management, an African dimension* (Ed. B.W. Andah): Wisdom Publshers: Ibadan. Pp. 136-146.

Ammerman, A.J. 1981. Surveys and Archaeological Research. *Annual Review of Anthropology.* 10: 63-83.

Andah, B.W. 1979. *Anthropological Archaeology in Nigeria;* Memographed October 1979 lectures. Lagos National Arts Theatre: Igamu.

Burra, C. 1981. *The Australian ICOMOS charter for the conservation of places of cultural significance.*

Bishop, W.W. 1971. The late cenozoic history of East Africa in relation to hominid evolution. In *The Late Cenozoic Glacial Ages* (ed. K.K. Turekian): Yale University Press: New Haven. Pp. 493-527.

Brandt, S.A. and O.Y. Mohamed, 1996. Starting from scratch; The past, present and future management of Somalia's cultural heritage. In P.R. Schmidt and R.J. McIntosh (eds.), *Plundering Africas Past,*. James Currey: London. Pp. 250-259.

Butzer, *et al.* 1972. Radiocarbon dating of East African lake levels. In *Science* 175: 1069-76.

Cole, S.M. 1954. *The Prehistory of East Africa.* Harmondsworth: Pelican Books.

Cole, S.M. 1963. *Prehistory of East Afica.* Free Press: New York.

Collins, R. 1991. Heritage and Tourism. *Federal Archaeological Report;* 4 (2) U.S. National Park Services. New York.

Coetzee, I. 1991. Cultural resource management defined. *Muniviro* 8 (1) : 2-3.

Deacon, J. 1992. *Archaeology for Planners, Developers and Local Authorities.* National Museums Council Cape Town.

Deacon, J. 1993. Archaeological sites as national monuments in South Africa: a review of sites declared since 1936. *South African Historical Journal.* 29: 118-131.

Deetz, J. I. 1967. *Invitation to Archaeology.* Natural history Press: Garden City.

Dunnel, T.M. 1971. *Systematics in Prehistory*. Free Press: New york

Ellia, R. 1991. Icomos Protects Cultural Heritage. *Federal Archaeological Report* 4 (2) U.S. National Park Services. New York.

Evans, J. D. 1978. *An introduction to Environmental Archaeology*. Pan Elek: London.

Fagan, B. 1998. *In the beginning : an introduction to archaeology.* Scott, Foresman and Company; London.

Government of Kenya. 1962. *The Preservation of Objects of Archaeological and Palaeonotlogical Interest Ordinance Chapter 215.*;Nairobi: Government Printer. Revised Edition.

Government of Kenya. 1984. *The Antiquities and Monuments Act Chapter 215;* Nairobi. Government Printer: Revised Edition.

Gowlett, J.A.J. 1979. A contribution to studies of the Acheulian in East Africa with special reference to Kariandusi. *Unpublished Ph.D dissertation, University of Cambridge.*

Hall, A. and A. Lillie, 1993. The national monuments council and a policy for providing protection for cultural and environmental heritage. *South African Historical Journal.* 29: 102-117.

Hall, M. 1995. Opinions. Provincialisation of measures to control heritage resources. *Southern Africa Field Archaeology.* 4: 65-67

Kaplan, J. 1993. The state of archaeological information in the coastal zone from the Orange River to ponda do oura. *Unpublished Report for the Department of Environmental affairs, Pretoria.*

Karoma, N.J. 1996. The deteroriation and destruction of archaeological and historical sites in Tanzania. In P.R. Schmidt and R.J. McIntosh(Eds.), *Plundering Afica's past.* James Curry: London. Pp191-200

Kibunjia, M. 1994. The status of archaeological collections and resources in Africa. In G.Pwiti and Soper.R. *Aspects of Africa Archaeology.* University of Zimbabwe publications; Harare.

King, T.F. 1971. Resolving a conflict of values in American Archaeology. *American Antiquity.* 36: 255-262.

Kliendienst, M. R. 1961. Variability within the late Acheulian assemblage in eastern Africa. *S.A.A.B* 16: 35-52

Kliendienst, M.R 1962. Components of the Eastern Africa Acheulian assemblage an analytic approach. *P.A.C.* 4: 81-105

Knudson, R. 1986. Contemporary cultural Resources Management; In J.M. David et al (eds.) *American Archaeology past and future.* Smithsonian Institutions Press: Washington D.C.

Kusimba, C.M. 1996. Kenya's destruction of the swahili cultural heritage. In P.R. Schmidt and R.J.MacIntosh [Eds], *Plundering Africa's past.* James Currey: London. Pp. 201-224

Leaky, L.S.B. 1931. *Stone Age cultures Kenya colon.* Cambridge University Press: Cambridge.

Leaky L.S.B 1936. *Stone Age Races of Kenya.* Oxford university press: Oxford.

Leaky, M.D. 1945. Report on the excavations at Hyrax Hill Nakuru. Kenya colony 1937-8, *Trans Roy. Soc. South Africa* XXX. IV PP. 271-409

Leakey, L.S.B. 1950. *Excavations at the Njoro river cave*. Oxford.

Lipe,W.D.1984. Value and meaning in cultural resources. In *Approaches to Archaeological Heritage;* Cleere H., (Eds.) Cambridge University Press. Cambridge

Mc Gmsey, C.R. 1972. *Public archaeology.* Seminar Press. New York.

Mturi, A. A. 1996. Whose cultural heritage? Conflicts and contradictions in the conservation of historic structures, town and rock art in Tanzania. In (Eds.) P.R. Schmidt and R. J. McIntosh, *Pludering Africa's past.* James Currey: London. PP170-190

Nilsson, E. 1940. Ancient changes of climate in British East Africa and Abyssinia. *Autryck Geografiska Annaler*, Stockholm: 1-79.

Nyamweru, C. 1980 *Rifts and volcanoes: a study of the East African rift system.* Nelson: Nairobi.

Posnansky. M. 1957. Excavations at Lanet, Kenya. In *Azania* 2: 92-98.

Posnansky, M. 1967. The iron Age in East Africa. In *Background to African Evolution;* (Eds.) W. W. Bishop and J.D Clark, Chicago.

Robinson, H 1977. *Morphology and landscape.* University Tutorial Press LTD. London

Schiffer, M.B, 1987. *Formation process of the Archaeological Record.* University of New Mexico Press. Alburquerque.

Spoerl, P.M. 1998. Management impacts on Cultural resources: an assessment of forest service research needs. In *tools to manage the past*: research priorities for cultural resource management in the Southwest, Tainter, J.A. and Hamre, R.H. (Eds.), U.S.D.A Forest and Range Experiment Station General Technical Report R.M- 164, Fort Collins, Co. 17-23.

Sutton, J.E.G. 1987. Hyrax Hill and the Sirikwa: New excavation on site II. In *Azania* XX II : 2-5.

Sutton, J.E.G. 1998. Hyrax Hill and the later archaeology of the central rift. *Azania* XXX III: 74-110.

Sweeney, M. 1995. Remarks. In *save our past for the future* II. Report of the working conference. Society for American Archaeology special Report: Pp. 19-20. Washington DC: Society for American Archaeology.

Thone, R.M.1991. ICOMOS protects cultural heritage. *Federal Archaeological Report* 4 (1) U.S National park Services: New York.

Van der Zel, D.W. 1989. *Strategic forestry development of South Africa.* Pretoria: Directorate of National Forestry Planning, Department of Environmental affairs.

Voigt, E. 1977. The destruction of archaeological evidence in South Africa. *SAAB* 32: 107-112

Washbourn, C.K. 1967. Lake levels and quaternary Climates in Eastern Rift Valley of Kenya. *Nature.* 216: 672-3.

Wandibba, S. 1996. The legal basis of conservation in Kenya: a review. In Pwiti G. and R. Soper (Eds.) *Aspects of African archaeology.* University of Zimbabwe publications: Harare.

White, L. 1949. The Evolution of culture. McGraw-Hill: New York.

Yeld, J. 1993. *Caring for the Earth. South Africa: a strategy for sustainable living. Stellenbosch;* The South African Nature Foundation

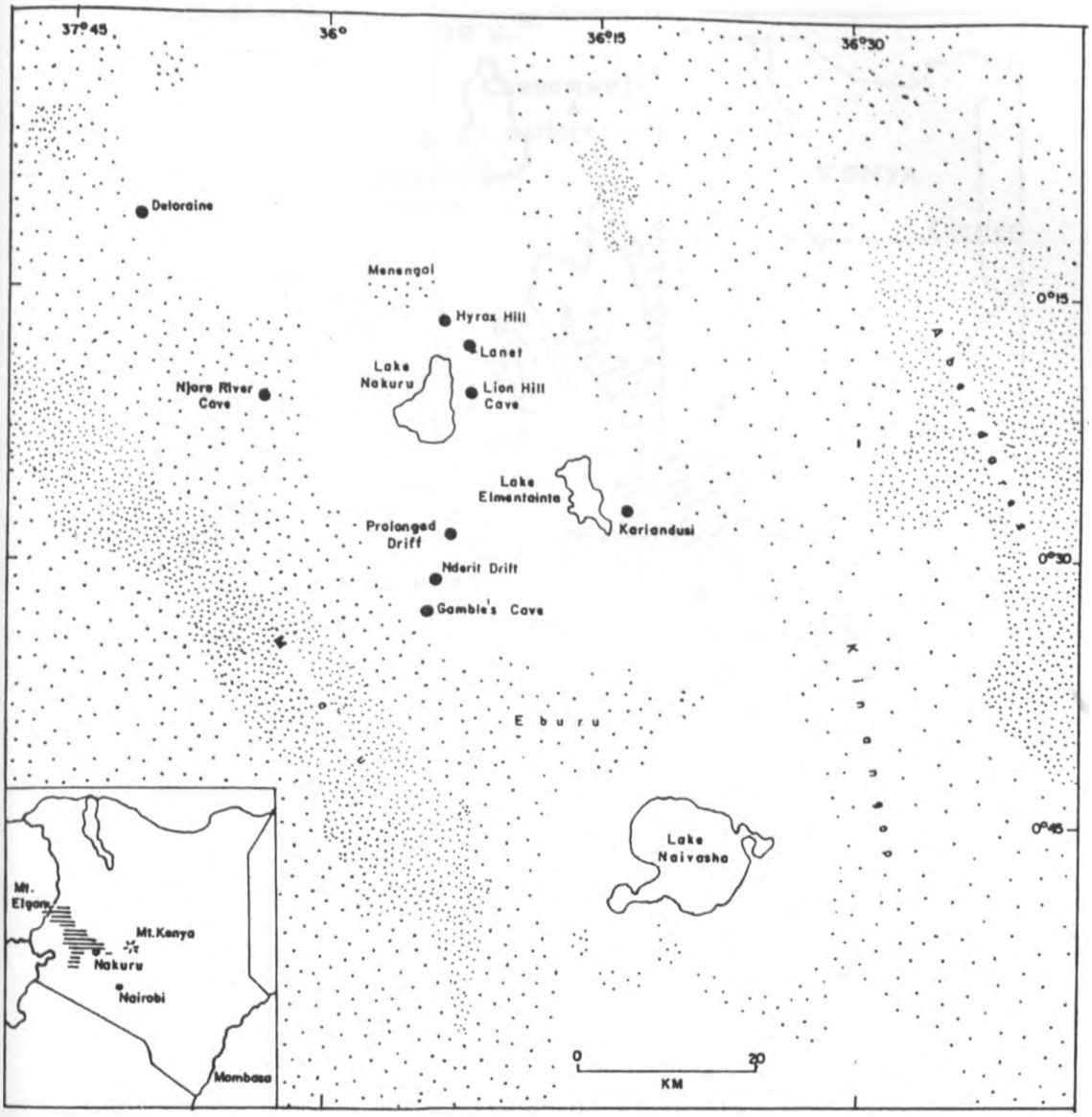
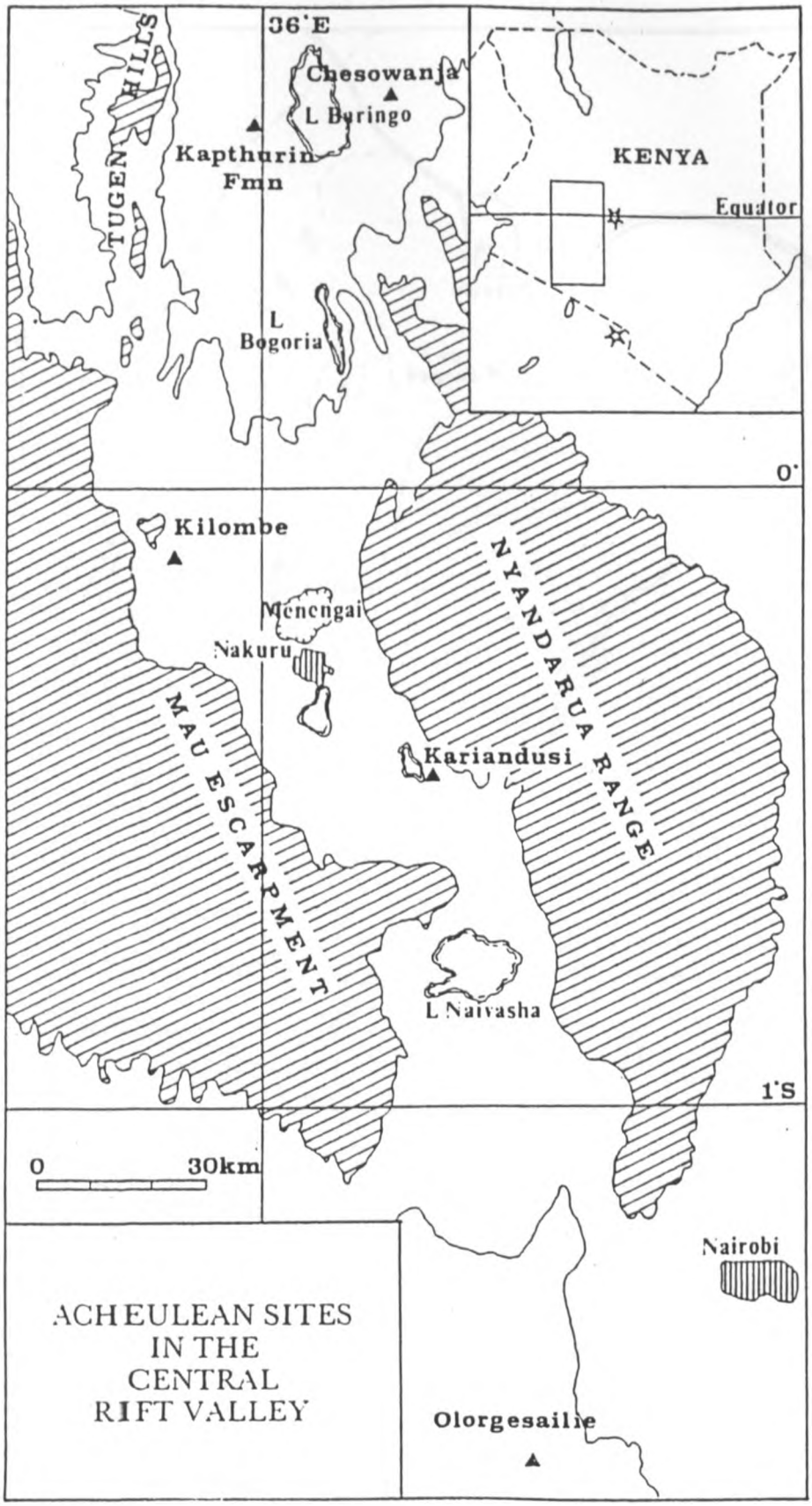


Fig. 1.2. The Central Rift Valley of Kenya showing Archaeological Sites and (Inset) the Sirikwa Zone in the Western Highland. Source: Azania XXXIII 1998: 75



1.3. The setting of Kariandusi site with other Acheulian sites in the Central Rift Valley. Source: African Archaeological Review Vol. 3 : 7

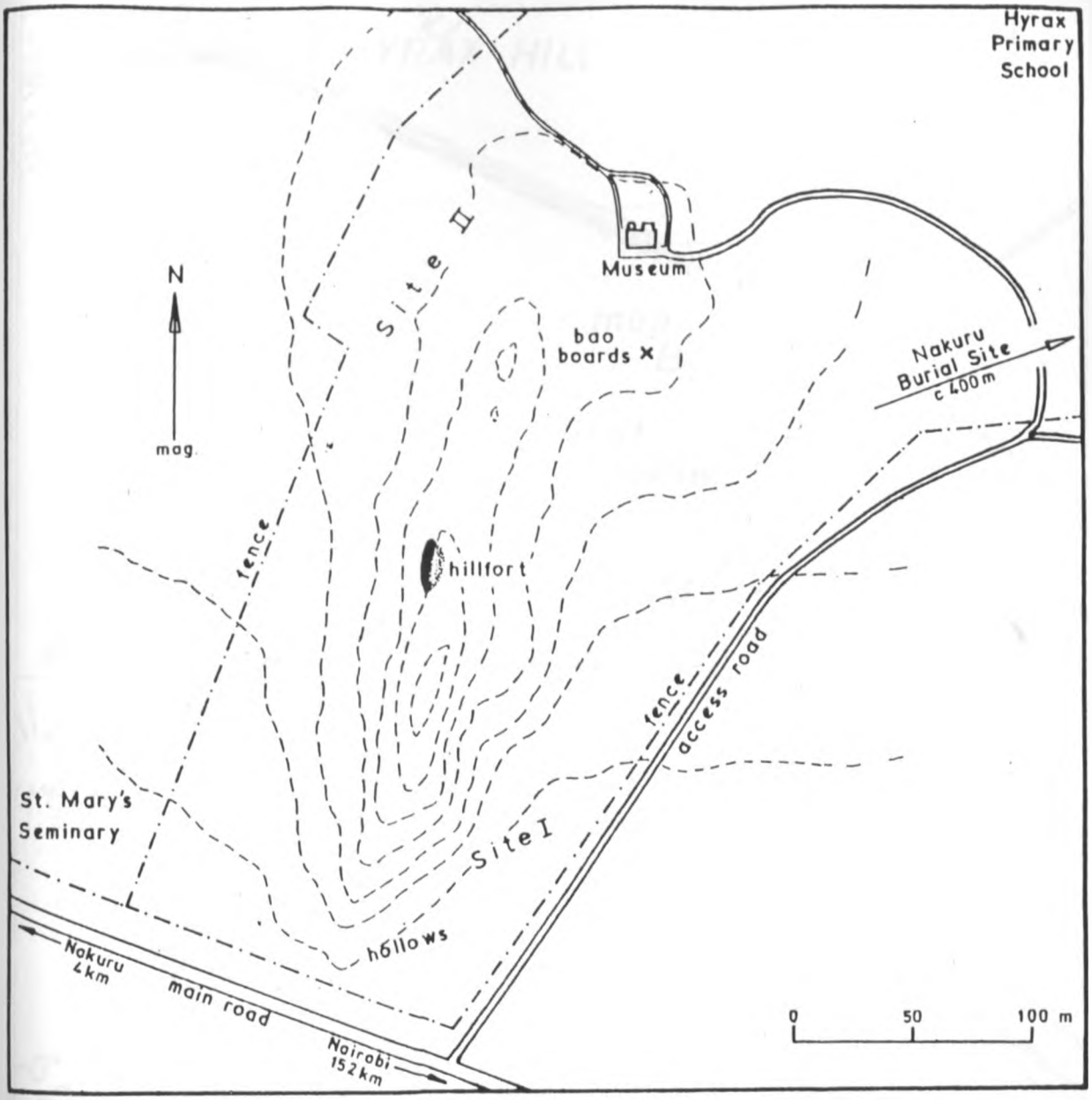
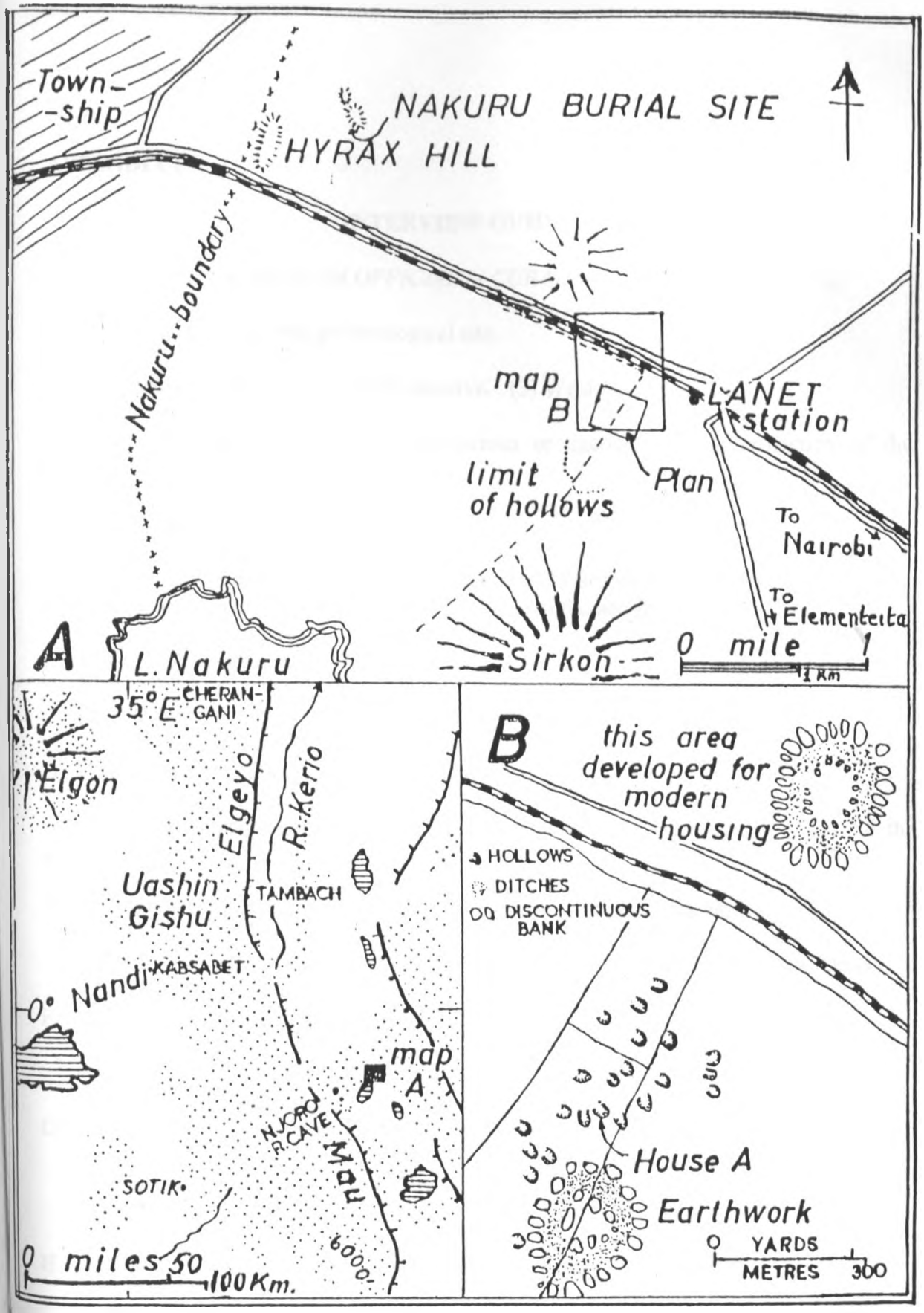


Fig. 1.4 Hyrax Hill , one of the sites investigated: Contours at 25 ft. interval and the main archaeological features. Source: Azania 1987. XXII : 86



1.5 Location of Lanet site with earthwork and relation to it of unexcavated earthwork.
Source: Azania 1987. Vol. II Pp. 90

APPENDIX I

INTERVIEW GUIDE

QUESTIONS FOR MUSEUM OFFICIALS (CURATORS)

A. How do you protect this archaeological site.

(1)Government support. (2) Self-initiative. (3) We don't

B. Do you get help from other organisations or agencies in the protection of this archaeological site.

(1) Yes (0) No

If yes, which ones amongst these organisations: (1) British institute (2) The museum Society of Kenya (3) U.N.E.S.C.O. (4) None of the above

C. What else is protected

(1) Sites gazetted are protected. (2) Sites not gazetted

D. How is the protection of the site financed?

(1) Government support. (2) Self. (3) Donations from organisations (4) All the above.

E. What kind of problems do you encounter in the protection of this site.

(1) Poor Government support. (2) Poor public attitude. (3) Staff laxity. (4) Others.

F. How many officials are in this archaeological site?

(1) 1-5 (2) 5-10. (3) 10-15 (4) 15-20 (5) Above 20.

G. What do you propose to be done to further improve the condition of the site?

(1) Finance them. (2) Improve public education. (3) More Government support.
(4) Others

H. Do you involve local people in the protection of this site?

(1) Yes (0) No.

I. What is their attitude towards this?

(1) Good (2) Bad

QUESTIONS FOR LOCAL COMMUNITIES

A. Do you know what an archaeological site is?

(1) Yes (0) No.

B. How do you benefit from it?

(1) Cultural education. (2) Leisure (3) Don't know (4) Others

C. Do you visit the site?

(1) Yes (2) No.

D. Are there problems with the site or having it next to your land? (1) Yes (0) No.

If yes, which ones amongst these: (1) Site expansion to our lands. (2) Socially abominable. (3) Others.

E. What would you suggest to be done in the better protection of the site if it has to be.

(1) Improve public education. (2) Finance protection and preservation of site.
3) Include local people on researches done at the site (4) Others. (5) Don't know

F. Are you consulted during fieldwork researches that are carried here.

(1) Yes (2) No.

APPENDIX 2

RESULTS OF INTERVIEW

PERSONS	QA	QB	QC	QD	QE	QF
P1 Quarry Worker	1	1,2	1	1,4	1,2,3,4	0
P2 Farmer	1	1,2	0	0	1,2,3,4	0
P3 Herdsman	0	3	0	1,4	5	0
P4 Pupil	0	3	0	0	5	0
P5 Area Resident	0	3	0	0	5	0
P6 Herdsman	0	3	0	0	5	0
P7 Herdsman	0	3	0	0	5	0
P8 Farmer	1	1,2,4	1	0	1,2,3,4	1
P9 Secondary Student	1	1,2,4	1	0	1,2,3	0
P10Secondary Student	1	1,2	0	0	1,2,3	0
P11 Pupil	0	3	0	0	5	0
P12 Pupil	1	1,2,4	1	0	1,2,3,4	0
P13Secondary Student	1	1,2	0	0	1,2,3	0
P14Secondary Student	1	1,2	1	0	1,2,3	0
P15 Quarry Worker	1	1,2	1	0	1,2,3,4	0
P16 Farmer	0	3	0	0	5	0
P17 Farmer	0	3	0	0	5	0
P18 Area Resident	1	1,2,4	1	0	1,2,3,4	0
P19 Area Resident	1	1,2,4	1	1,2,4	1,2,3	1
P20 Herdsman	0	3	0	0	5	0
P21 Teacher	1	1,2,4	1	2	1,2,3	0
P22 Herdsman	0	3	0	0	5	0
P23 Teacher	1	1,2	0	0	1,2,3	0
P24 Teacher	1	1,2,4	1	0	1,2,3	0
P25 Herdsman	0	3	0	1,4	5	0
P26 Pupil	1	1,2	0	0	1,2,3,4	0
P27 Quarry workman	1	1,2	1	1,4	1,2,3	1
P28 Teacher	1	1,2	1	0	1,2,3	0
P29 Tourist	1	1,2	1	-	1,2,3	0
P30 Tourist	1	1,2,4	1	-	1,2,3	0
P31 Hotel Worker	1	1,2	1	0	1,2,3,4	0
P32 Farmer	0	3	0	0	5	0
P33 Pupil	0	3	0	0	5	0

Table 7 (a). Responses to questions asked to the local community at the Kariandusi site area.

PERSONS	QA	QB	QC	QD	QE	QF	QG	QH
P1 Curator	1,2	1,2	1	4	1,2,3	1	1,2,4	1
P2 Guide	1,2	1,2	1	4	1,2,3	1	1,2,4	1

Table 7 (b.) Responses from the museum staff.

PERSONS	QA	Q B	Q C	Q D	QE	Q F
P1Commercialland developer	1	1,2,4	1	0	1,2,3	0
P2 Farmer	1	1,2	0	1,2,4	1,2,3	0
P3 Herdsman	0	3	0	1,4	5	0
P4 Herdsman	0	3	0	1,4	1,2,3	0
P5 Farmer	1	1,2,4	1	0	1,2,3	0
P6 Secondary student	1	1,2	0	0	1,2,3,4	0
P7Commercial Land developer	1	3	0	1,2,4	1,2,3	0
P8 Secondary student	1	1,2	1	0	1,2,3,4	0
P9 Pupil	0	3	0	0	5	0
P10 Pupil	1	1,2	1	0	1,2,3	0
P11 Herdsman	0	3	0	1,4	5	0
P12 Farmer	1	1,2	0	0	1,2,3	0
P13 Teacher	1	1,2	0	0	1,2,3,4	0
P14 Farmer	1	1,2	0	0	5	0
P15 Foreign tourist	1	1,2,4	1		1,2,3	0
P16 Businessman	0	3	0	0	5	0
P17 Herdsman	0	3	0	1,4	5	0
P18 Farmer	1	1,2	1	1,2,4	1,2,3,4	0
P19 Watchman Lalji School	1	1,2	0	0	1,2,3	0
P20 Farmer	1	1,2	0	0	1,2,3	0
P21 Pupil	1	1,2	1	0	1,2,3,4	0
P22Secondary student	1	1,2,4	1	0	1,2,3	0
P23 Herdsman	0	3	0	1,2,4	5	0
P24 Tourist (local)	1	1,2	1	0	1,2,3	1
P25 Teacher	1	1,2	1	0	1,2,3	0
P26 Herdsman	0	3	0	0	1,2,3,4	0
P27 Herdsman	1	1	1	0	1,2,3	0
P28 Pupil	0	3	0	0	5	0
P29 Pupil	0	3	0	0	5	0
P30 Herdsman	0	3	0	1,2	5	0
P31Secondary student	1	1,2	1	0	1,2,3	0
P32 Herdsman	0	3	0	1,2,4	5	0
P33 Farmer	0	3	0	1,2	5	

Table 8 (a). Responses to the questions asked to the local community at the Hyrax Hill site area.

PERSONS	Q A	Q . B	Q .C	Q .D	Q .E	Q F	G	H
P1 Curator	1,2	1,2	1	4	1,2,3	1	1,2,4	1
P2 Guide	1,2	1,2	1	4	1,2,3	1	1,2,4	1

Table 8 (b). Responses from the museum staff.

PERSONS	QA	QB	QC	QD	QE	QF
P1Student	1	1,2	1	0	1,2,3	0
P2 Herdsman	0	3	0	0	5	0
P3 Herdsman	0	3	0	0	5	0
P4 Businessman	0	3	0	1,3	5	0
P5 Teacher	1	1,2,4	1	0	1,2,3	0
P6 Herdsman	0	3	0	0	1,2,3	0
P7 Student	1	1,2	0	0	1,2,3	0
P8 Herdsman	0	3	0	0	5	0
P9 Teacher	1	1,2	0	0	1,2,3	0
P10 Herdsman	0	3	0	0	5	0
P11 Herdsman	0	3	0	0	5	0
P12 Herdsman	0	3	0	0	5	0
P13 Herdsman	1	1,2	1	0	1,2,3	0
P14 Teacher	1	1,2,4	0	0	1,2,3	0
P15 Pupil	1	1,2,4	0	1,3	1,2,3	0
P16 Land developer	1	1,2	0	0	1,2,3	1
P17 Area resident	0	3	0	0	5	0
P18 Herdsman	0	3	0	1,3	1,2,3	0
P19 Land developer	1	1,2,4	0	0	1,2,3,4	0
P20 Pupil	0	3	0	0	1,2,3	0
P21 Herdsman	0	3	0	0	1,2,3	0
P22 Businessman	0	3	0	0	5	0
P23 Pupil	0	3	0	0	5	0
P24 Teacher	1	1,2	0	0	1,2,3,4	1
P25 Driver	1	1,2,4	0	0	1,2,3	0
P26 Farmer	0	3	0	0	5	0
P27 Herdsman	0	3	0	0	5	0
P28 Farmer	0	3	0	0	5	0
P29 Student	0	3	0	0	5	0
P30 Teacher	1	1,2	0	0	1,2,3,4	0
P31 Pupil	0	3	0	0	5	0
P32 Pupil	0	3	0	0	5	0
P33 Area resident	1	1,2,4	1	0	1,2,3	0

Table 9. Responses to the questions asked to the local community at the Lanet site area.

PERSONS	QA	QB	QC	QD	QE	QF
P1 Farmer	0	3	0	0	5	0
P2 Farmer	0	3	0	0	5	0
P3 Land owner	0	3	1	0	5	1
P4 Student	1	1,2	0	0	1,2,3,4	0
P5 Herdsman	0	3	0	0	5	0
P6 Student	1	1,2	0	0	1,2,3	0
P7 Student	1	1,2,4	0	0	1,2,3	0
P8 Herdsman	0	3	0	0	5	0
P9 Farmer	0	3	0	0	5	0
P10 Farmer	0	3	0	0	5	0
P11 Herdsman	0	3	0	0	5	0
P12Farmer	0	3	0	0	5	0
P13 Student	1	1,2	0	0	1,2,3	0
P14 Student	0	3	0	0	5	0
P15 Herdsman	0	3	0	0	5	0
P16 Herdsman	0	3	0	0	5	1
P17 Pupil	0	3	0	0	5	0
P18 Student	1	1,2	0	0	1,2,3	0
P19 Farmer	0	3	0	0	5	0
P20 Herdsman	0	3	0	0	5	0
P21 Herdsman	0	3	0	0	5	0
P22 Herdsman	0	3	0	0	5	0
P23 Pupil	0	3	0	0	5	0
P24 Shopkeeper	1	1,2,4	0	0	1,2,3	0
P25 Herdsman	0	3	0	0	5	0
P26 Farmer	0	3	0	0	5	0
P27 Student	1	1,2	0	1,3	1,2,3,4	0
P28 Pupil	0	3	0	0	5	0
P29 Teacher	1	1,2	0	0	1,2,3	0
P30 Farmer	0	3	0	0	5	0
P31 Student	1	1,2	0	0	1,2,3	0
P32Area resident	0	3	0	0	5	0
P33 Student	1	1,2,4	0	0	1,2,3	0

Table 10. Responses to the questions asked to the local community at the Njoro River Cave site area.

APPENDIX 3

RESULTS OF THE ANALYSIS OF THE VISITORS' BOOKS

	Visitors in Numbers						Charges in Kshs.					
	Foreign			Local			Foreign			Local		
Month	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**
Jan 98	18,58%	13,42%	31	10,63%	6,37%	16	100	50	2450	50	20	620
Feb 98	23,88%	3,12%	26	2,17%	10,83%	12	100	50	2600	50	20	220
Mar 98	5, 56%	4,44%	9	0,0%	4,100%	4	100	50	700	50	20	80
Apr 98	3,100%	0,0%	3	2,33%	4,67%	6	100	50	300	50	20	180
May 98	6,60%	4,40%	10	30,41%	40,59%	73	100	50	800	50	20	950
Jun 98	16,76%	5,24%	21	1,33%	2,67%	3	100	50	2100	50	20	90
Jul 98	10,71%	4,29%	14	3,75%	1,25%	4	100	50	1200	50	20	170
Aug 98	22,82%	5,18%	27	1,17%	5,83%	6	100	50	2700	50	20	150
Sep 98	20,91%	2,9%	22	0,0%	0,0%	0	100	50	2200	56	20	0
Oct 98	4,100%	0,0%	4	2,3%	55,97%	57	100	50	400	50	20	1200
Nov 98	0,0%	0,0%	0	1,8%	10,92%	11	100	50	0	50	20	250
Dec 98	2,73%	10,23%	37	2,11%	16,89%	18	100	50	3200	50	20	420
Total			**205**			**202**			**18600**			**4300**

Table 11(a). Visitors to Kariandusi site in1998.

	Visitors in Numbers						Charges in Kshs.					
	Foreign			Local			Foreign			Local		
Month	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**
Jan 99	6,43%	8,57%	14	2,25%	6,75%	8	100	50	1000	50	20	220
Feb 99	8,73%	3,27%	11	3,30%	7,70%	10	100	50	950	50	20	290
Mar 99	12,75%	4,25%	16	2,17%	10,83%	13	100	50	1400	50	20	220
Apr 99	0,0%	0,0%	0	1,17%	5,83%	6	100	50	0	50	20	150
May 99	6,100%	0,0%	6	3,6%	44,94%	47	100	50	600	50	20	1030
Jun 99	8,100%	0,0%	8	3,11%	24,89%	27	100	50	800	50	20	630
Jul 99	10,71%	4,29%	14	7,54%	6,46%	13	100	50	1200	50	20	470
Aug 99	17,81%	4,19%	21	2,3%	66,97%	68	100	50	1900	50	20	1420
Sep 99	13,81%	3,19%	16	3,100%	0,0%	3	100	50	1450	50	20	150
Oct 99	10,77%	3,23%	13	4,57%	3,43%	7	100	50	1150	50	20	350
Nov 99	3,100%	0,0%	3	1,5%	21,95%	22	100	50	300	50	20	470
Dec 99	16,89%	2,11%	18	0,0%	0,0%	0	100	50	1700	50	20	0
Total			**140**			**224**			**12450**			**5400**

Table11(b) Visitors to Kariandusi site in 1999.

	Visitors in Numbers						Charges in Kshs.					
	Foreign			Local			Foreign			Local		
Month	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**
Jan. 98	20,57%	15,43%	35	3,38%	5,62%	8	100	50	2750	50	20	250
Feb.98	15,88%	3,12%	17	3,5%	58,95%	61	100	50	1650	50	20	1310
Mar.98	12,57%	9,43%	21	2,12%	15,88%	17	100	50	1650	50	20	400
Apr 98	20,77%	6,23%	26	2,100%	0,0%	2	100	50	2300	50	20	100
May 98	27,77%	8,23%	35	2,4%	43,96%	45	100	50	3100	50	20	960
Jun 98	13,68%	6,32%	19	9,69%	4,31%	13	100	50	1600	50	20	530
Jul 98	45,74%	16,26%	61	2,9%	21,91%	23	100	50	5300	50	20	520
Aug 98	18,62%	11,38%	29	3,43%	4,57%	3	100	50	2300	50	20	230
Sep 98	45,82%	10,18%	45	2,4%	50,96%	52	100	50	5000	50	20	1100
Oct 98	32,68%	15,32%	47	12,48%	13,52%	25	100	50	3950	50	20	860
Nov 98	36,72%	14,28%	50	20,34%	39,66%	41	100	50	4300	50	20	832
Dec 98	41,71%	17,29%	58	5,42%	7,58%	12	100	50	4950	50	20	390
Total			**443**			**302**			**37250**			**7482**

Table 11(c). Visitors to Hyrax Hill site in 1998.

	Visitors in Numbers						Charges in Kshs.					
	Foreign			Local			Foreign			Local		
Month	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**	**Adult**	**Child**	**Total**
Jan 99	10,67%	5,33%	15	2,10%	19,90%	21	100	50	1250	50	20	480
Feb 99	16,67%	8,33%	24	4,11%	32,89%	36	100	50	2000	50	20	840
Mar 99	7,54%	6,46%	13	5,29%	12,71%	11	100	50	1000	50	20	490
Apr 99	19,90%	2,10%	21	4,67%	2,33%	6	100	50	2000	50	20	240
May 99	39,87%	5,13%	44	10,67%	5,33%	15	100	50	4150	50	20	600
Jun 99	15,83%	3,17%	18	1,5%	20,95%	21	100	50	1650	50	20	500
Jul 99	22,79%	6,21%	28	3,7%	41,93%	44	100	50	2500	50	20	970
Aug 99	46,90%	5,10%	51	3,23%	10,77%	51	100	50	4850	50	20	500
Sep 99	26,81%	6,19%	32	1,3%	29,97%	30	100	50	2900	50	20	680
Oct 99	14,74%	5,26%	19	18,72%	7,28%	25	100	50	1650	50	20	1040
Nov 99	17,63%	10,37%	27	10,55%	8,45%	18	100	50	2200	50	20	160
Dec 99	41,66%	21,34%	62	8,72%	3,28%	11	100	50	5150	50	20	460
Total			**354**			**295**			**31300**			**6960**

Table 11 (d). Visitors to Hyrax Hill site in 1999.

APPENDIX 4

LIST OF INFORMANTS

	NAME	AGE	SEX	OCCUPATION
1.	Mutuku H.	33	M	Teacher
2.	Kimani S.	16	M	Herdsman
3.	Ngororoi T.	20	M	Herdsman
4.	Machini M.	36	F	Businesswoman
5.	Atandi K.	17	M	Farmer
6.	Ojwang M.	42	M	Quarry Worker
7.	Mose D.	19	M	Student
8.	Njoroge S.	16	F	Student
9.	Mwangi L.	18	M	Herdsman
10.	Lelei E.	26	M	Herdsman
11.	Maingi G.	41	F	Businesswoman
12.	Ochoi O.	31	M	Farmer
13.	Mwai F.	10	F	Pupil
14.	Wanjiku M.	19	F	Farmer
15.	Ngaine A.	18	M	Herdsman
16.	Mutai S.	9	F	Pupil
17.	Oteino G.	11	M	Pupil
18.	Nyang'au N.	26	M	Farmer
19.	Matayo O.	28	M	Farmer
20.	Musonge Z.	33	M	Farmer
21.	Almasi H.	17	M	Student
22.	Nyaga C.	40	F	Farmer
23.	Nyaimbo D.	36	F	Shopkeeper
24.	Lalsunya L.	38	M	Herdsman
25.	Ngaria I.	14	M	Herdsman
26.	Njeru K.	19	M	Farmer
27.	Abu S.	12	M	Pupil
28.	Nyamu D.	14	F	Student
29.	Ndetei F.	22	M	Not defined
30.	Kirui A.	33	M	Curator
31.	Daudi S.	41	M	Watchman
32.	Musonye D.	36	M	Guide
33.	Mwangi S.	28	M	Quarry worker
34.	Jakes S.	38	M	Tourist
35.	Omwansa M.	31	F	Farmer
36.	Kipkosgei K.	47	M	Comm.land devlper
37.	Kamau N.	31	M	Farmer
38.	Wamae J.	16	F	Farmer
39.	Jairo M.	18	M	Student
40.	Ombiro R.	15	F	Herdsman
41.	Nyamache J.	24	M	Student
42.	Okondo D.	18	M	Herdsman
43.	Okongo E.	22	M	Herdsman
44.	Onsongo D.	29	M	Tourist
45.	Seme R.	33	F	Farmer
46.	Masime O.	21	M	Farmer
47.	Michira E.	38	M	Herdsman

48.	Mwangi J.	58	F	Farmer
49.	Oira N.	26	F	Teacher
50.	Zakayo T.	36	M	Herdsman
51.	Mwenje S.	30	F	Farmer
52.	David R.	43	M	Tourist
53.	Asuba G.	13	F	Pupil
54.	Amuko D.	42	F	Teacher
55.	Meteti J.	26	M	Student
56.	Saisi E.	28	M	Student
57.	Karani J	25	M	Student
58.	Rotich M.	26	F	Student
59.	Mayaka A.	22	F	Student
60.	Asiba J.	35	M	Farmer
61.	Moranga T.	28	M	Teacher
62.	Masire O.	10	F	Pupil
63.	Miano J.	14	M	Student
64.	Kundu H.	27	M	Farmer
65.	Keino K.	33	M	Farmer
66.	Ngamai U.	20	M	Herdsman
67.	Eklale I.	18	M	Herdsman
68.	Akei S.	22	F	Pupil
69.	Oliech G.	30	F	Farmer
70.	Korir K.	21	M	Herdsman
71.	Nderti S.	25	M	Guide
72.	Munai T.	34	M	Curator
73.	Mathai Y.	36	F	Teacher
74.	Wekesa N.	32	M	Farmer
75.	Kathuri W.	31	M	Student
76.	Liboso J.	11	F	Pupil
77.	Wamae T.	18	M	Herdsman
78.	Mutiso G.	26	F	Not defined
79.	Kumaru M	18	M	Herdsman
80.	Kiai O.	21	M	Student
81.	Ladido M.	36	M	Herdsman
82.	Amo D.	35	M	Herdsman
83.	Njeri L.	16	F	Student
84.	Magote S.	13	M	Pupil
85.	Waweru N.	28	F	Teacher
86.	Alunga J.	32	M	Teacher
87.	Musingi D.	37	M	Farmer
88.	Mwachai S.	48	F	Teacher
89.	Kipkeino J.	50	M	Not defined
90.	Aseka O.	35	M	Not defined
91.	Chichir N.	36	M	Herdsman
92.	Okoba B.	17	M	Herdsman
93.	Kerario S.	24	M	Student
94.	Mwangi F.	29	M	Herdsman
95.	Ouma C.	38	M	Farmer
96.	Kinani M.	41	M	Teacher
97.	Mwasi K.	26	F	Student
98.	Misoi W.	31	F	Farmer
99.	Wangoi M.	29	M	Farmer

100. Kingori M.	35	M	Herdsman
101. Kyalo C.	20	F	Student
102. Nunga T.	16	M	Student
103. Kiogora T.	39	F	Farmer
104. Ochang P.	13	F	Pupil
105. Wairimu M.	36	M	Farmer
106. Munene R.	26	M	Herdsman
107. Waiganjo S.	43	M	Not defined
108. Kosgei N.	32	M	Herdsman
109. Mwangi R.	39	F	Teacher
110. Mutwango E.	21	F	Farmer
111. Makumi S.	16	M	Farmer
112. Segei P.	15	M	Student
113. Gukunda L.	14	M	Student
114. Mburugu G.	42	M	Businessman
115. Moaabu N.	12	F	Student
116. Kimani D.	22	M	Not defined
117. Githoni J.	17	F	Herdsman
118. Bbaka S.	16	F	Student
119. Wayamba N.	26	M	Farmer
120. Ladong D.	22	M	Herdsman
121. Kihusa E.	29	M	Herdsman
122. Waigonji N.	27	F	Farmer
123. Mungai G.	36	M	Not defined
124. Kiprotch K.	41	M	Farmer
125. Mogire A.	14	M	Student
126. Walwanga G.	33	M	Farmer
127. Salesoi M.	40	M	Herdsman
128. Kanaa D.	51	F	Farmer
129. Wangari F.	17	F	Student
130. Ndungu N.	39	M	Not defined
131. Wachira J.	37	M	Not defined
132. Gitau M.	27	M	Farmer
133. Waruinu J.	15	F	Herdsman
134. Gachiku M.	17	F	Student
135. Wambui G.	26	F	Farmer
136. Munene L.	14	M	Student Herdsman

Table 12. List of interviewees.